ORDER NO. EMID861147

Service Manual

Electronic Organ
SX-EX50/L

Photo: SX-EX50

Cabinet Colour

K....................Black Face

(EN), (EI), (EH), (EB), (EF), (EZ), (EW), (EL), (EP), (EK), (MC), (XT), (XL), (XR), (XS), (X), (XX), (XV)

AREAS

(EN):	Norway, Sweden, Denmark	(MC):	Canada
(EI):	Italy	(XT):	Taiwan
(EH):	Holland	(XL):	New Zealand
(EB):	Belgium	(XR):	Australia
(EF):	France, Austria	(XS):	Malaysia, Singapore, South Africa
(EZ):	Germany	(X):	the Middle East, Hong Kong, the Philippines, Indonesia
(EW):	Switzerland		
(EL):	Finland		
(EP):	Spain	(XX):	Peru, Chile
(EK):	the United Kingdom	(XV):	Venezuela, Ecuador, Panama

Specifications

Keyboards	
• Upper Manual:	44 Keys ($3^{2}/_{3}$ Octaves)
• Lower Manual:	44 Keys ($3^{2}/_{3}$ Octaves)
• Pedal Keyboard:	13 Keys (1 Octave)
One Touch Play:	on
Fullband Setting Computer (FSC):	**Record**, 1~5 (lower keyboard)
Play Sequencer:	**Record**, Bass, Lower, Upper, Solo
Voice Setting Computer (VSC):	Set, 1~7, Cancel, 20 Combination VSC (lower keyboard: 1~20)
Orchestral Conductor	
• Upper:	Tab Voices, String Ensemble, Poly Presets, Solo Presets
• Lower:	Tab Voices, String Ensemble, Poly Presets, Solo Presets
Upper Tones	
• Tab Voices:	Flute 16′, 8′, 4′, 2′, String 8′...Volume
Percussive Tone:	4′, Click
Harmonic Coupler:	**Record**, $2^{2}/_{3}$′ (program)
• String Ensemble:	Volume
• Poly Presets (Upper & Lower)	
Percussive Presets:	Piano, Harpsichord, Vibraphone, Guitar, Banjo...Full
Orchestral Presets:	Trombone, Saxophone, Accordion, Clarinet, Wah Brass...Full
• Solo Presets: (Upper & Lower)	Trombone, Saxophone, Clarinet, Flute, Pan Flute, Synthe...Volume
Lower Tones	
• Tab Voices:	Flute 8′, 4′, String 8′...Full
Harmonic Coupler:	**Record**, 2′ (program)
• String Ensemble:	Volume
• Poly Presets (Upper & Lower)	
Percussive Presets:	Piano, Harpsichord, Vibraphone, Guitar, Banjo...Full
Orchestral Presets:	Trombone, Saxophone, Accordion, Clarinet, Wah Brass...Full
• Solo Presets: (Upper & Lower)	Trombone, Saxophone, Clarinet, Flute, Pan Flute, Synthe...Volume
Bass Tones:	Bass 16′, 8′, 16′+8′, Acoustic Bass, Electric Bass, Tuba...Volume

Effects:	
• Sustain:	Upper..........................On, Length Control U & L Poly Presets...On, Length Control Lower..........................On, Length Control Bass..........................Length Control
• Chorus/Tremolo/Celeste:	U. Tab Voices, U/L Poly Presets, L. Tab Voices ...Chorus, Tremolo, Celeste
• Reverb:	Reverb Depth Control
• Glide:	Foot Switch
Techni-Chord:	On, Close/Open (program)
Drum Percussion	
• Rhythm Selectors:	March, Shuffle, Swing I, Swing II, 8 Beat, Funk Rock, 16 Beat, Samba Rock, Ballad, Swing Rock, Disco I, Disco II, Rhumba, Guaracha, Bossa Nova I, Bossa Nova II, Mambo, Cha-Cha, Samba, Baion, Waltz, Tango, Jazz Waltz
• Rhythm Controls:	Synchro & Break, Start/Stop, Volume, Foot Switch, Glide/Rhythm, Tempo
• Intro & Ending:	On, Vari
• Fill In:	I, II, Solo
• Rhythmic Orchestra:	Rhythmic, Melodic, I / II ...Volume
Program Chord Computer (PCC):	**Record**, PCC, Cancel
• Chord Composer:	𝄞—, ◄, ►, ⊢⌒⊣, ⊢⌒⊣, ⊢⊢⊣⊣, 𝄋 𝄌, D.S., —‖, ⊂⊃, ⊣⊢ (lower keyboard)
• Auto Play Chord:	Fingered, Memory, Cancel
Program Rhythm Computer (PRC):	**Record**, Composer I, II, III Rhythm Sequencer On, Lower Keyboard...Clear, Beat, 2nd Bar, Triplet, Accent/Pitch, I, II, III, 1~16, 𝄞—, ◄, ►, ⊢⌒⊣, ⊢⌒⊣, ⊢⊢⊣⊣, 𝄋 𝄌, D.S., —‖ ⊂⊃, ⊢⊂⊃⊣, ⊣⊢
Program Function Switches:	**Record**, Foot Switch
Transpose:	Control (G~C~F#/G♭)
Tuning:	Free Set, Pitch Control (−, +)
Musical Display:	○

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

MIDI:	Set, Clock Int/MIDI, Start/Stop, Program Change, Effect, Sustain, Part Select (Bass, Lower, Upper, Solo), MIDI Terminals (In, Out)	**Cabinet Dimensions: (W×H×D):**	(EX50L) 107.6cm ($42^{3}/_{8}$")×92.9cm ($36^{9}/_{16}$")× 52.0cm ($20^{15}/_{32}$") (EX50) 111.4cm ($43^{27}/_{32}$")×96.9cm ($38^{5}/_{32}$")× 57.2cm ($22^{17}/_{32}$")
Others:	Power Switch, Main Volume, Expression Pedal, Headphones Jack, Input Jack, Microphone Jack (with volume), Output Jack, Ext I/O (FD) Terminal, Initial (lower keyboard), Digital Memory Pack Slot	**Net Weight (without bench):**	(EX50L) 48kg (105.8lbs.) (EX50) 61kg (134.5lbs.)
Speakers:	30cm 6Ω×1, 6.5cm 6Ω×1		
Maximum Output:	50W		
Power Requirement:	160W AC 120/220/240V, 50/60Hz AC 220V, 50/60Hz...Europe AC 120V, 60Hz...North America, Taiwan		

- Common "**Record**" switch is used for these switches.
- Specifications subject to change without notice.

CONTENTS

■ INTRODUCTION

HOW TO ASSEMBLE THE ORGAN I-2
ARRANGEMENT OF CONTROL PANEL I-2
DISASSEMBLY INSTRUCTIONS I-4
PRINTED CIRCUIT BOARDS LOCATION I-7
MEASUREMENTS AND ADJUSTMENTS I-8
PRECAUTIONS BEFORE SERVICING I-9
KEYBOARD RANGES I-11

■ SCHEMATIC DIAGRAM

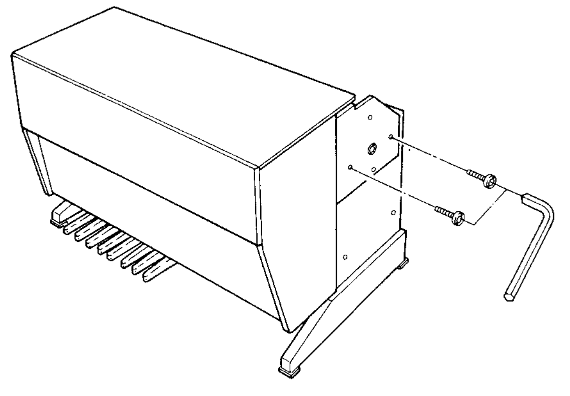
TOTAL BLOCK DIAGRAM II-1
MOTHER CIRCUIT BOARD II-3
WIRING CONNECTION DIAGRAM II-5
SYSTEM ASSIGNER CIRCUIT BOARD II-7
SYSTEM ASSIGNER CIRCUIT DIAGRAM II-9
TONE GENERATOR MODULE CIRCUIT BOARD II-11
UPPER TG SUSTAIN CONTROL CIRCUIT II-13
LOWER TG SUSTAIN CONTROL CIRCUIT II-13
PERCUSSIVE TG SUSTAIN CONTROL CIRCUIT II-14
TONE GENERATOR MODULE CIRCUIT DIAGRAM II-15
ORGAN CIRCUIT BOARD II-17
ORGAN CIRCUIT DIAGRAM II-19
ORCHESTRAL & PERCUSSIVE PRESETS CIRCUIT BOARD II-21
ORCHESTRAL & PERCUSSIVE PRESETS CIRCUIT DIAGRAM II-23
ACCOMPANIMENT CIRCUIT BOARD II-25
ACCOMPANIMENT CIRCUIT DIAGRAM II-27
BASS & DRUM PERCUSSION CIRCUIT BOARD II-29
BASS & DRUM PERCUSSION CIRCUIT DIAGRAM II-31
SOLO PRESETS CIRCUIT BOARD II-33
SOLO PRESETS CIRCUIT DIAGRAM II-35
TREMOLO & CELESTE MODULATION CIRCUIT BOARD II-37
TREMOLO & CELESTE MODULATION CIRCUIT DIAGRAM II-39
SELECTOR & MIXING CIRCUIT DIAGRAM II-41
SELECTOR & MIXING CIRCUIT BOARD II-43
NOISE REDUCTION CIRCUIT II-43
UPPER CONTROL PANEL CIRCUIT DIAGRAM II-45
UPPER CONTROL PANEL RIGHT CIRCUIT BOARD II-47
UPPER CONTROL PANEL LEFT CIRCUIT BOARD II-47
MUSICAL DISPLAY CIRCUIT II-50
LOWER CONTROL PANEL LEFT CIRCUIT BOARD II-51
LOWER CONTROL PANEL LEFT CIRCUIT DIAGRAM II-53
LOWER CONTROL PANEL RIGHT CIRCUIT BOARD II-55
FILTER CIRCUIT BOARD II-55
LOWER CONTROL PANEL RIGHT CIRCUIT DIAGRAM II-56
MANUAL KEYBOARD CIRCUIT DIAGRAM II-57
MANUAL KEYBOARD CIRCUIT BOARD II-57
PEDAL KEYBOARD CIRCUIT BOARD II-57
PEDAL KEYBOARD CIRCUIT DIAGRAM II-58
EXPRESSION CIRCUIT II-59
MEMORY PACK CONTROL CIRCUIT DIAGRAM II-60
MEMORY PACK CONTROL CIRCUIT BOARD II-60
MEMORY PACK CIRCUIT DIAGRAM II-61
MEMORY PACK CIRCUIT BOARD II-62
JACK 1 CIRCUIT DIAGRAM II-63
NETWORK CIRCUIT II-63
JACK 1 CIRCUIT BOARD II-64
JACK 2 CIRCUIT II-64
AC POWER SUPPLY, POWER SUPPLY, POWER AMPLIFIER CIRCUIT BOARD II-65
AC POWER SUPPLY, POWER SUPPLY, POWER AMPLIFIER CIRCUIT DIAGRAM II-67

■ EXPLODED VIEWS & REPLACEMENT PARTS LIST

EXPLODED VIEWS OF CABINET (SX-EX50) III-1
REPLACEMENT PARTS LIST.....Mechanical Parts III-3
EXPLODED VIEWS OF CABINET (SX-EX50L) III-5
EXPLODED VIEWS OF MANUAL KEYBOARD III-7
EXPLODED VIEWS OF PEDAL KEYBOARD III-8
REPLACEMENT PARTS LIST......Electrical Parts III-11
PACKING (SX-EX50) III-24
PACKING (SX-EX50L) III-25

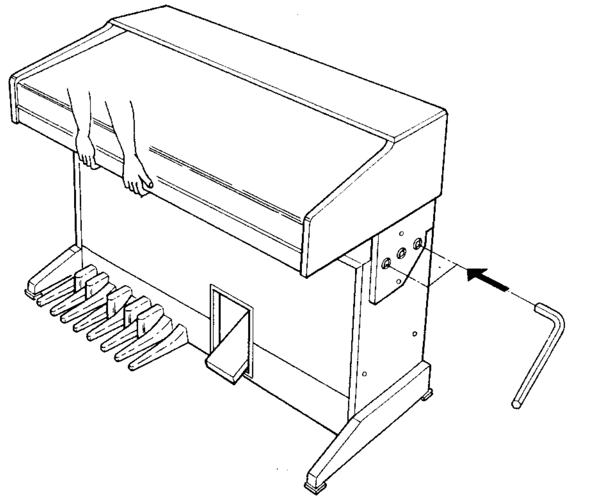
HOW TO ASSEMBLE THE ORGAN

1. Remove the red screws using the supplied wrench.



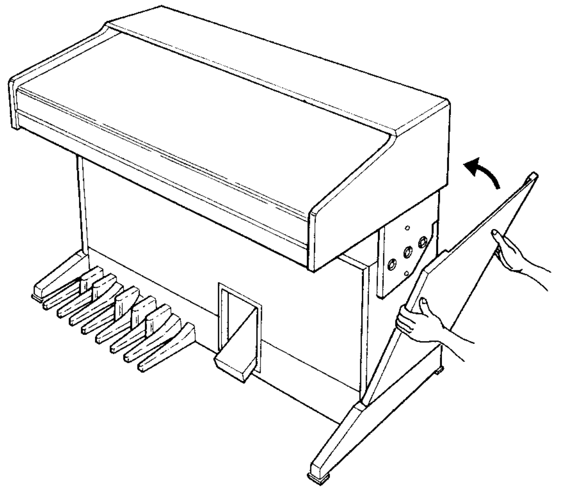
[Fig.-1]

2. Holding the upper cabinet section, lift it into position and tighten the red screws firmly.
   Caution: When lifting the upper cabinet section, DO NOT hold the keyboard. (SX-EX50L)



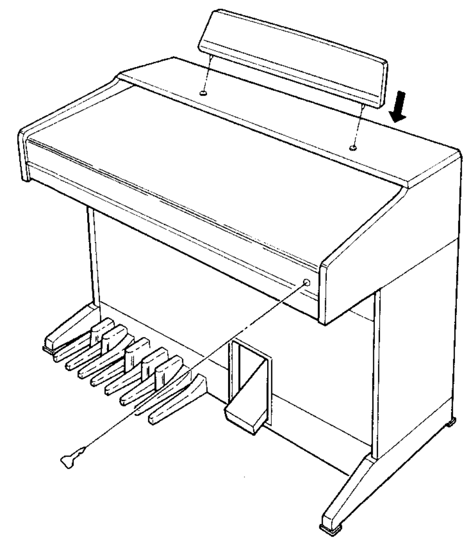
[Fig.-2]

3. Hold each side panels with both hands and install the side panel on the side board of cabinet.



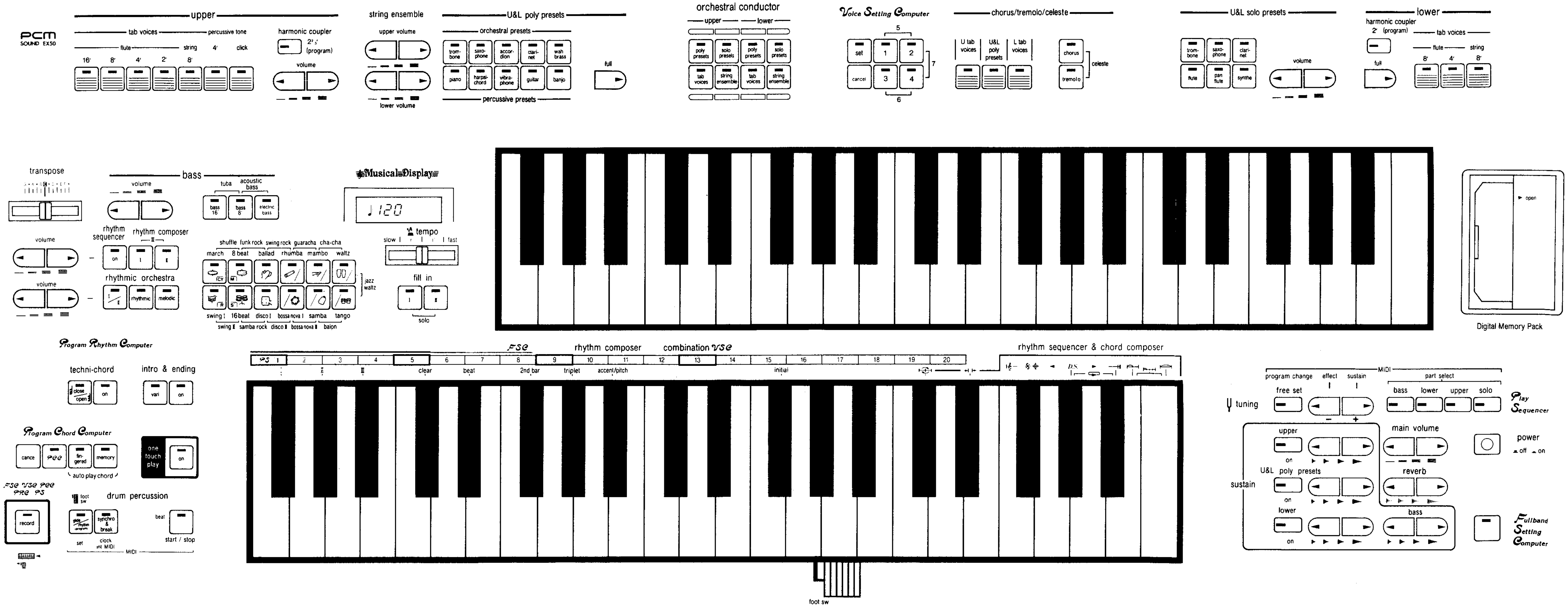
[Fig.-3]

4. Set the music rack on the top cover.
   - SX-EX50
     Unlock the sliding cover with the accessory key.



[Fig.-4]

ARRANGEMENT OF CONTROL PANEL


PCM SOUND EX50
upper
tab voices
percussive tone
flute
string
4′
click
16′
8′
4′
2′
8′
harmonic coupler
2²⁄₃′ (program)
volume
string ensemble
upper volume
lower volume
U&L poly presets
orchestral presets
trom-bone
saxo-phone
accor-dion
clari-net
wah brass
piano
harpsi-chord
vibra-phone
guitar
banjo
percussive presets
full
orchestral conductor
upper
lower
poly presets
solo presets
poly presets
solo presets
tab voices
string ensemble
tab voices
string ensemble
Voice Setting Computer
set
1
2
cancel
3
4
5
6
7
chorus/tremolo/celeste
U tab voices
U&L poly presets
L tab voices
chorus
tremolo
celeste
U&L solo presets
trom-bone
saxo-phone
clari-net
flute
pan flute
synthe
volume
lower
harmonic coupler
2′ (program)
full
tab voices
flute
string
8′
4′
8′
transpose
bass
volume
tuba
acoustic bass
bass 16′
bass 8′
electric bass
Musical Display
♩120
tempo
slow
fast
volume
volume
rhythm sequencer
rhythm composer
on
I
II
rhythmic orchestra
I/II
rhythmic
melodic
shuffle
funk rock
swing rock
guaracha
cha-cha
march
8 beat
ballad
rhumba
mambo
waltz
jazz waltz
swing I
16beat
disco I
bossa nova I
samba
tango
swing II
samba rock
disco II
bossa nova II
baion
fill in
I
II
solo
Digital Memory Pack
open
Program Rhythm Computer
techni-chord
close/open
on
intro & ending
vari
on
Program Chord Computer
cance
PCC
fin-gered
memory
auto play chord
one touch play
on
FSC VSC PCC PRC PS
record
foot sw
drum percussion
set
synchro & break
clock int MIDI
beat
start / stop
MIDI
FSC
rhythm composer
combination VSC
PS 1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
II
III
clear
beat
2nd bar
triplet
accent/pitch
initial
rhythm sequencer & chord composer
D.S.
foot sw
MIDI
program change
effect
sustain
part select
tuning
free set
−
+
bass
lower
upper
solo
Play Sequencer
upper
on
U&L poly presets
on
lower
on
sustain
main volume
reverb
bass
power
off
on
Fullband Setting Computer

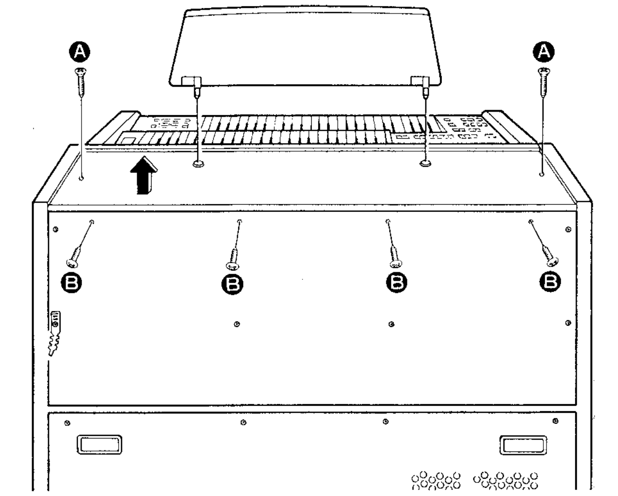
DISASSEMBLY INSTRUCTIONS

1. Music Rack (Fig.-5, Fig.-6)

a) Music rack can be removed upward.

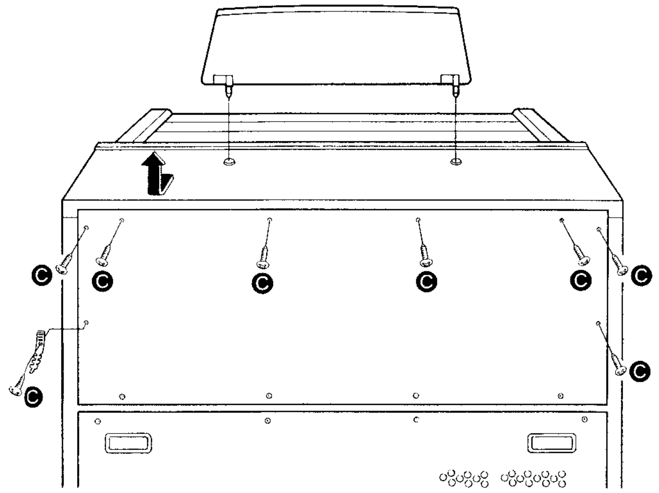
2. Top Cover

- SX-EX50L (Fig.-5)
  - a) Remove the 2 screws Ⓐ located on the right and left side of the top cover.
  - b) Remove the 4 screws Ⓑ located on the rear board.
  - c) The top cover can be removed upwards.



[Fig.-5]

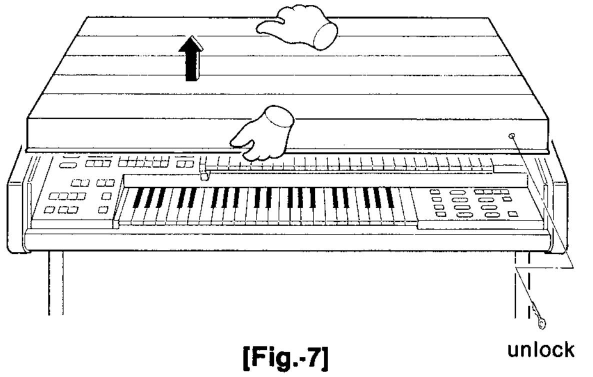
- SX-EX50 (Fig.-6)
  - a) Remove the 8 screws Ⓒ located on the rear board.
  - b) Remove the top cover, slide it backward and lift.



[Fig.-6]

3. Silding Cover

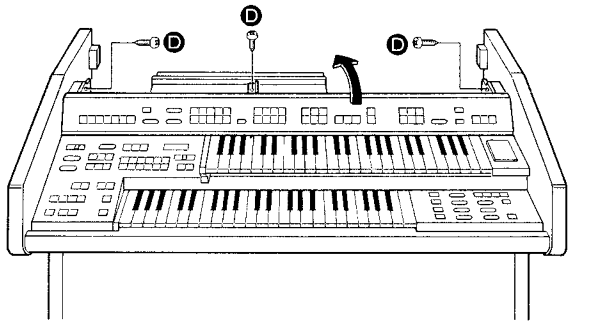
- SX-EX50 (Fig.-7)
  - a) Unlock the sliding cover with the accessory key.
  - b) After removing the top cover, remove the sliding cover in its fully-closed position.



[Fig.-7]

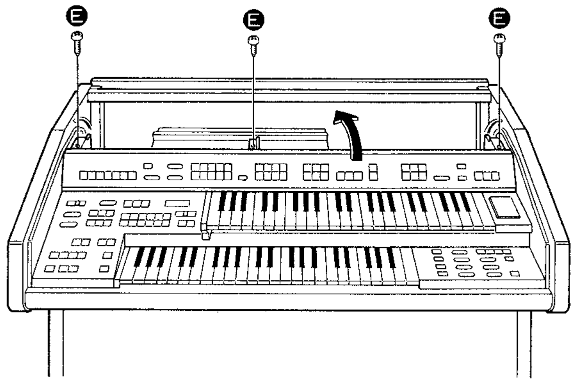
4. Upper Control Panel

- SX-EX50L (Fig.-8)
  - a) Remove the top cover according to step 2.
  - b) Remove the 3 red screws Ⓓ which fasten the upper control panel.
  - c) Then the upper control panel can be opened upwards.



[Fig.-8]

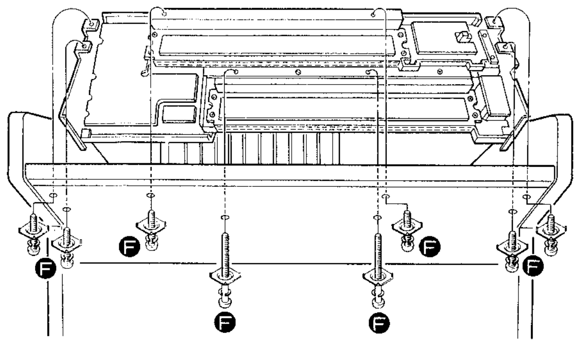
- SX-EX50 (Fig.-9)
  - a) Remove both top cover and sliding cover according to steps 2 and 3.
  - b) Remove the 3 red screws Ⓔ which fasten the upper control panel.
  - c) Then the upper control panel can be opened upwards.



[Fig.-9]

5. Keyboard & End Cover Unit (Fig.-10)

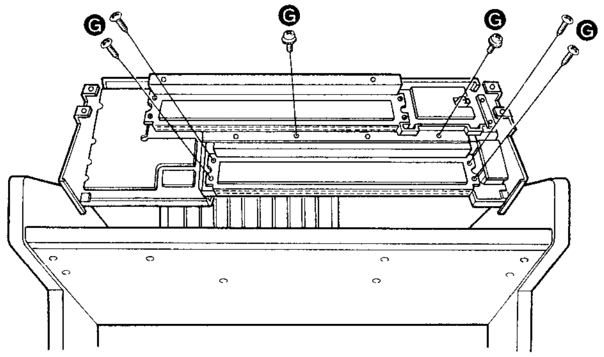
- a) Open the control panel according to step 4.
- b) Remove the 8 screws Ⓕ on the bottom of the self-board.
- c) Then the keyboard & end cover unit can be opened upwards.



[Fig.-10]

6. Upper Keyboard (Fig.-11)

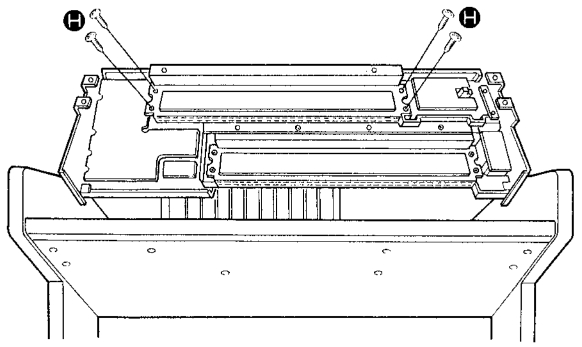
- a) Open the keyboard & end cover unit according to step 5.
- b) Remove the 6 screws Ⓖ which fasten the upper keyboard chassis.
- c) Then the upper keyboard can be removed.



[Fig.-11]

7. Lower Keyboard (Fig.-12)

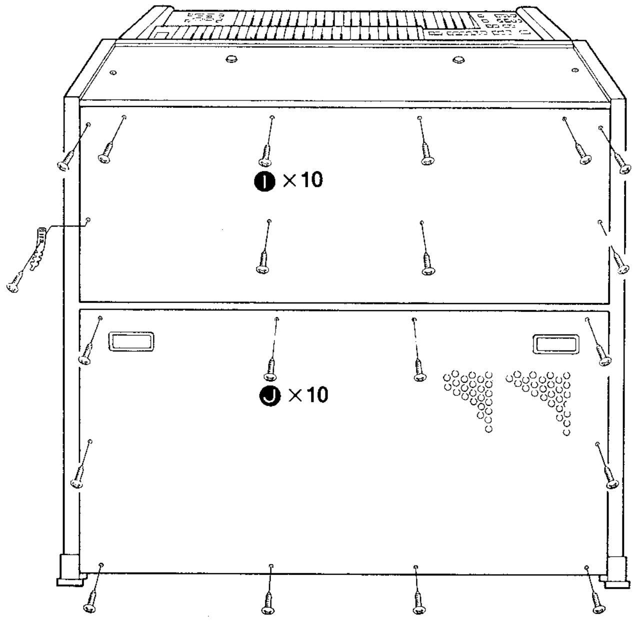
- a) Open the keyboard & end cover unit according to step 5.
- b) Remove the 4 screws Ⓗ which fasten the lower keyboard chassis.
- c) Then the lower keyboard can be removed.



[Fig.-12]

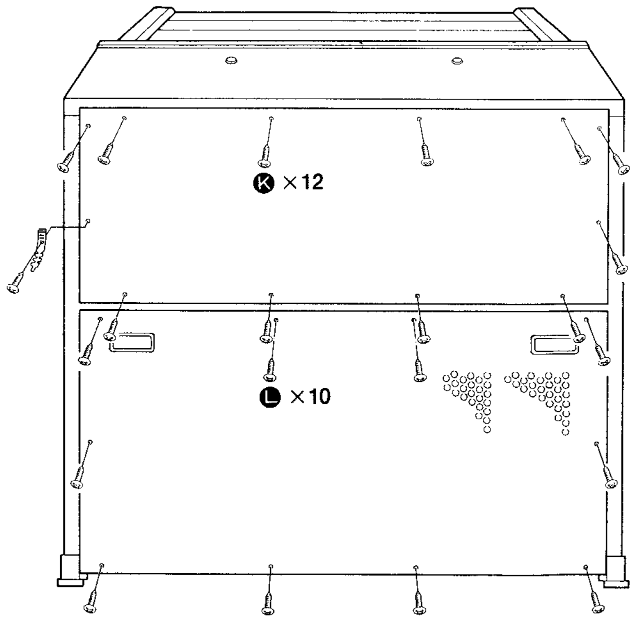
8. Rear Board

- SX-EX50L (Fig.-13)
  - a) Upper cabinet section
    Remove the 10 screws Ⓘ on the rear board.
  - b) Lower cabinet section
    Remove the 10 screws Ⓙ on the rear board.



[Fig.-13]

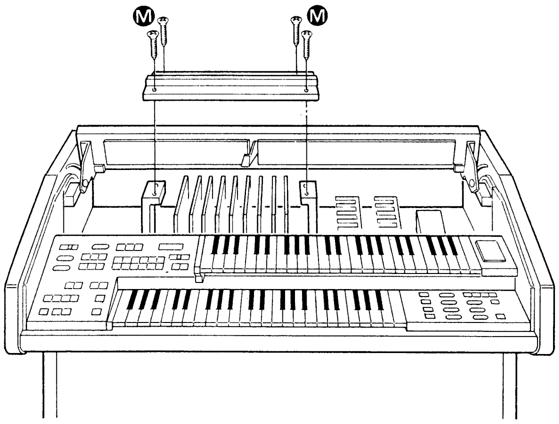
- SX-EX50 (Fig.-14)
  - a) Upper cabinet section
    Remove the 12 screws Ⓚ on the rear board.
  - b) Lower cabinet section
    Remove the 10 screws Ⓛ on the rear board.



[Fig.-14]

9. Printed Circuit Board (Mother Board Block) (Fig.-15)

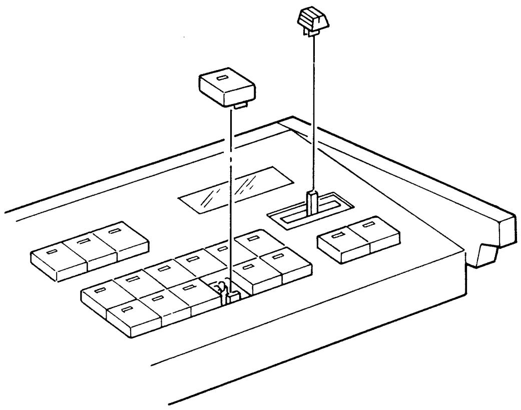
a) Open the control panel according to step 4.
b) Remove the 4 screws Ⓜ on the printed circuit board retainer plate.
c) Each printed circuit board can be removed from the connector of the mother board.



[Fig.-15]

10. Buttons and Knobs (Fig.-16)

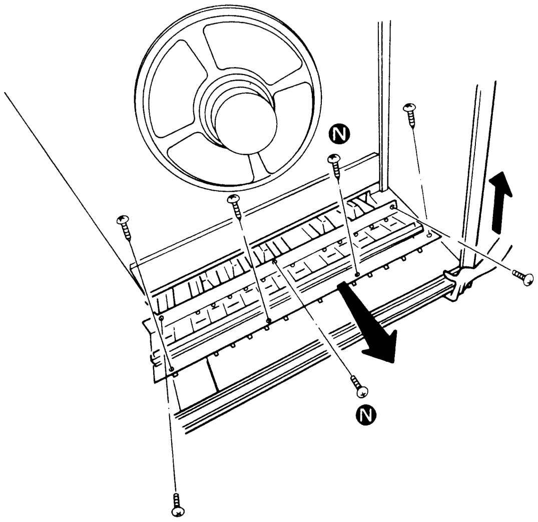
a) All buttons and knobs can be pulled out.



[Fig.-16]

11. Pedal Keyboard (Fig.-17)

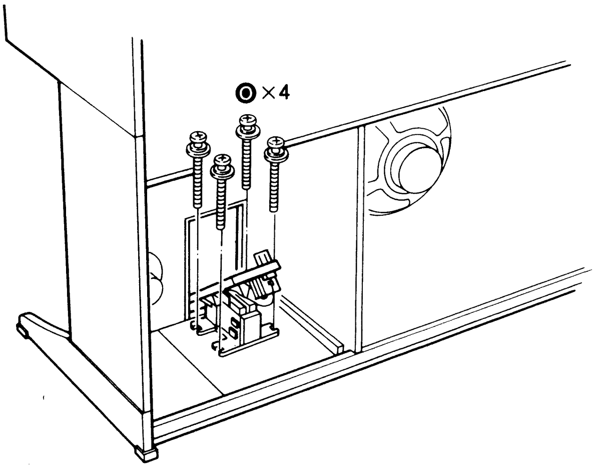
a) Remove the rear board of the lower cabinet.
b) Remove the 7 screws Ⓝ which fasten the pedal keyboard chassis.
c) Lift the cabinet body, and remove the pedal keyboard from the bottom plate of the cabinet.



[Fig.-17]

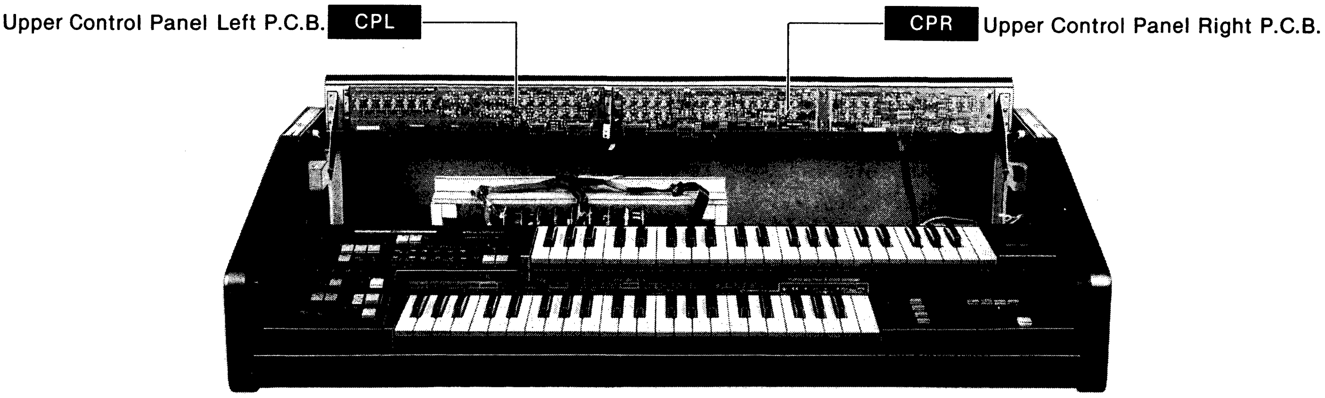
12. Expression Unit (Fig.-18)

a) Remove the rear board of the lower cabinet.
b) Remove the 4 screws Ⓞ which fasten the expression unit.
c) The expression unit can be removed.
d) When replacing the expression lamp, remove the lamp retainer rubber and detach the lamp from the socket.

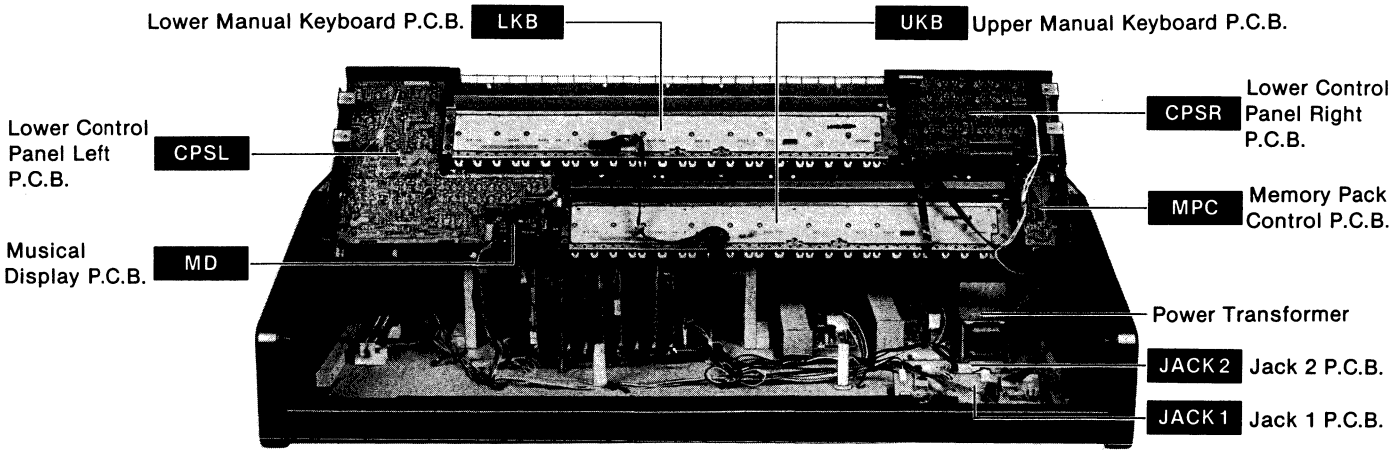


[Fig.-18]

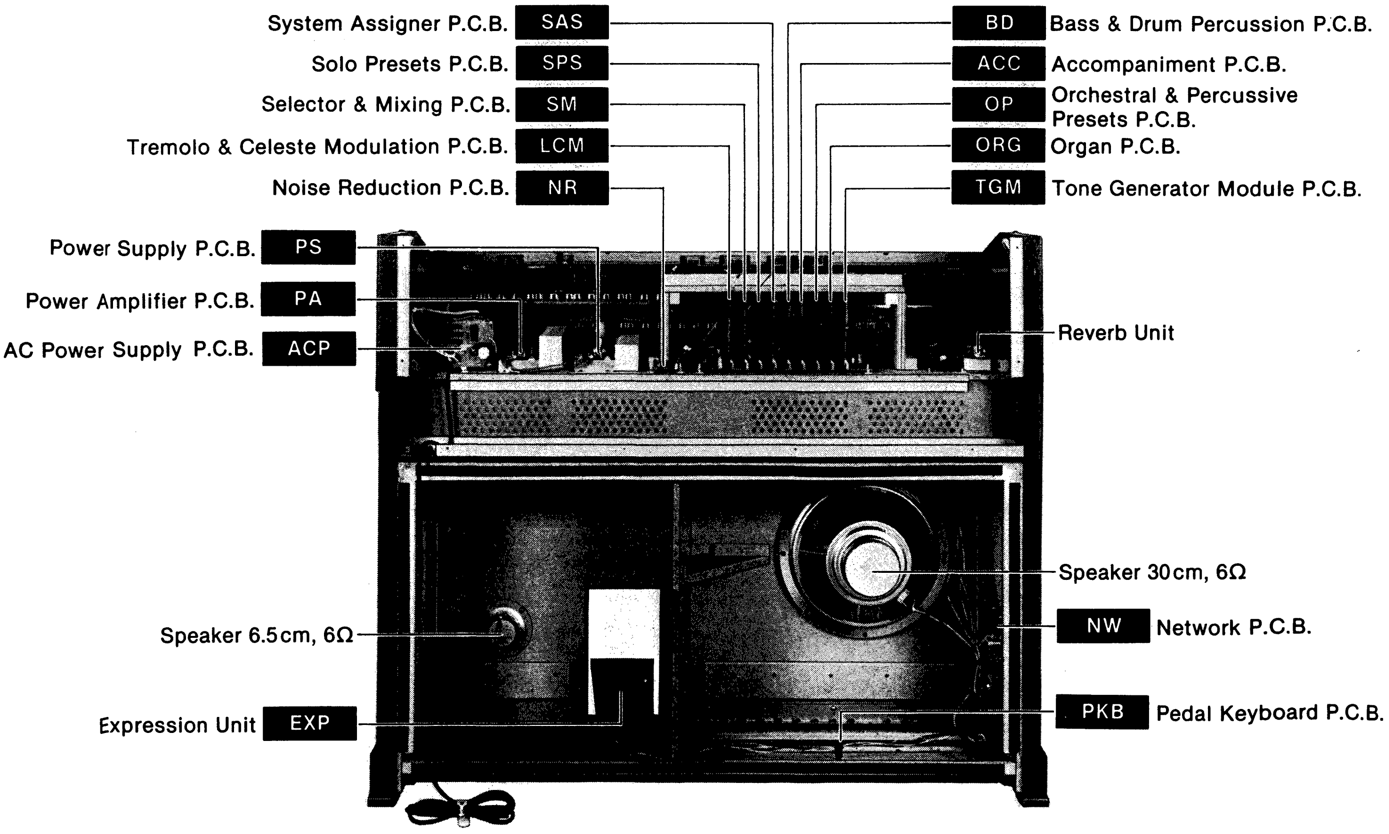
PRINTED CIRCUIT BOARDS LOCATION


Upper Control Panel Left P.C.B. CPL
CPR Upper Control Panel Right P.C.B.

[Photo-1]

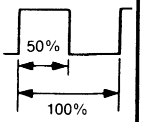
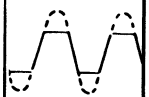

Lower Manual Keyboard P.C.B. LKB
UKB Upper Manual Keyboard P.C.B.
Lower Control Panel Left P.C.B. CPSL
CPSR Lower Control Panel Right P.C.B.
MPC Memory Pack Control P.C.B.
Musical Display P.C.B. MD
Power Transformer
JACK2 Jack 2 P.C.B.
JACK1 Jack 1 P.C.B.

[Photo-2]

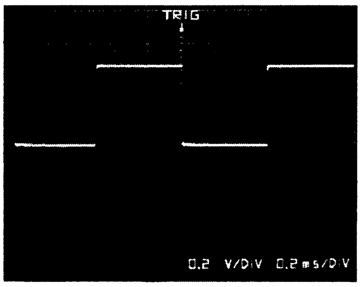

System Assigner P.C.B. SAS
Solo Presets P.C.B. SPS
Selector & Mixing P.C.B. SM
Tremolo & Celeste Modulation P.C.B. LCM
Noise Reduction P.C.B. NR
BD Bass & Drum Percussion P.C.B.
ACC Accompaniment P.C.B.
OP Orchestral & Percussive Presets P.C.B.
ORG Organ P.C.B.
TGM Tone Generator Module P.C.B.
Power Supply P.C.B. PS
Power Amplifier P.C.B. PA
AC Power Supply P.C.B. ACP
Reverb Unit
Speaker 30cm, 6Ω
NW Network P.C.B.
Speaker 6.5cm, 6Ω
Expression Unit EXP
PKB Pedal Keyboard P.C.B.

[Photo-3]

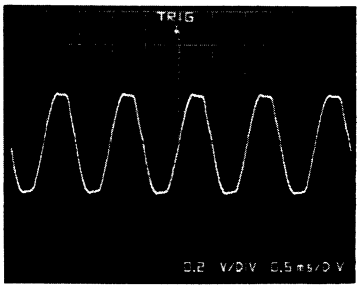
MEASUREMENTS AND ADJUSTMENTS

ADJUSTMENT	MEASURING CONDITIONS	EQUIPMENT	ADJUSTMENT CIRCUIT BOARD	ADJ. POINT	CONNECT METER TO	METER READING
Tuning (Tab)	tuning (free set).............off	Oscilloscope	SAS P.C.B.	VR1	check point ⑬	
	Connect the oscilloscope to check poiint ⑬ of system assigner P.C.B. and adjust VR1 so that the duty ratio of output waveform is 50%.					
Tuning (mono-tone)	tuning (free set).............off	Oscilloscope	SAS P.C.B.	VR2	check point ⑭	
	Connect the oscilloscope to check point ⑭ of system assigner P.C.B. and adjust VR2 so that the duty ratio of output waveform is 50%.					
Reverb depth	u. tab voices...................flute 4′, 8′, 16′ u. tab volume..................max main volume...................max reverb...............................max upper keyboard.............C5~B5 chorus/tremolo/ celeste........................off	Electric voltmeter	SM P.C.B.	VR1	check point ㉒	350mVrms
	1. Connect the electric voltmeter to check point ㉒ of selector & mixing P.C.B. 2. Adjust VR1 so that the output level of check point ㉒ is 350mVrms when the C5~B5 keys (8 white keys) of upper keyboard are depressed.					
Output level	u. tab voices...................flute 4′, 8′, 16′ u. tab volume..................max main volume...................max expression pedal...........max upper keyboard.............C3, E3, G3 reverb volume................min chorus/tremolo/ celeste........................off	Electric voltmeter	SM P.C.B.	VR2	check point ② of PA P.C.B.	3.5Vrms
	1. Connect the electric voltmeter to check point ② of power amplifier P.C.B. 2. Adjust VR2 of selector & mixing P.C.B. so that output level is 3.5Vrms when the C3, E3, G3 keys of upper keyboard are depressed.					
BBD bias	any position	Oscilloscope and Oscillator	LCM P.C.B.	VR1	Check point ㉘	
	1. Connect the oscilloscope to check point ㉘ of tremolo & celeste modulation P.C.B. 2. Input 1kHz sine wave to IC15-③ pin by oscillator through capacitor of less than 0.1µF. Then, adjust the output level of oscillator until the sinwave on the oscilloscope is clipped. 3. Adjust VR1 so that the output waveforms on the oscilloscope are evenly clipped at top and bottom.					

Tuning



BBD bias adjustment



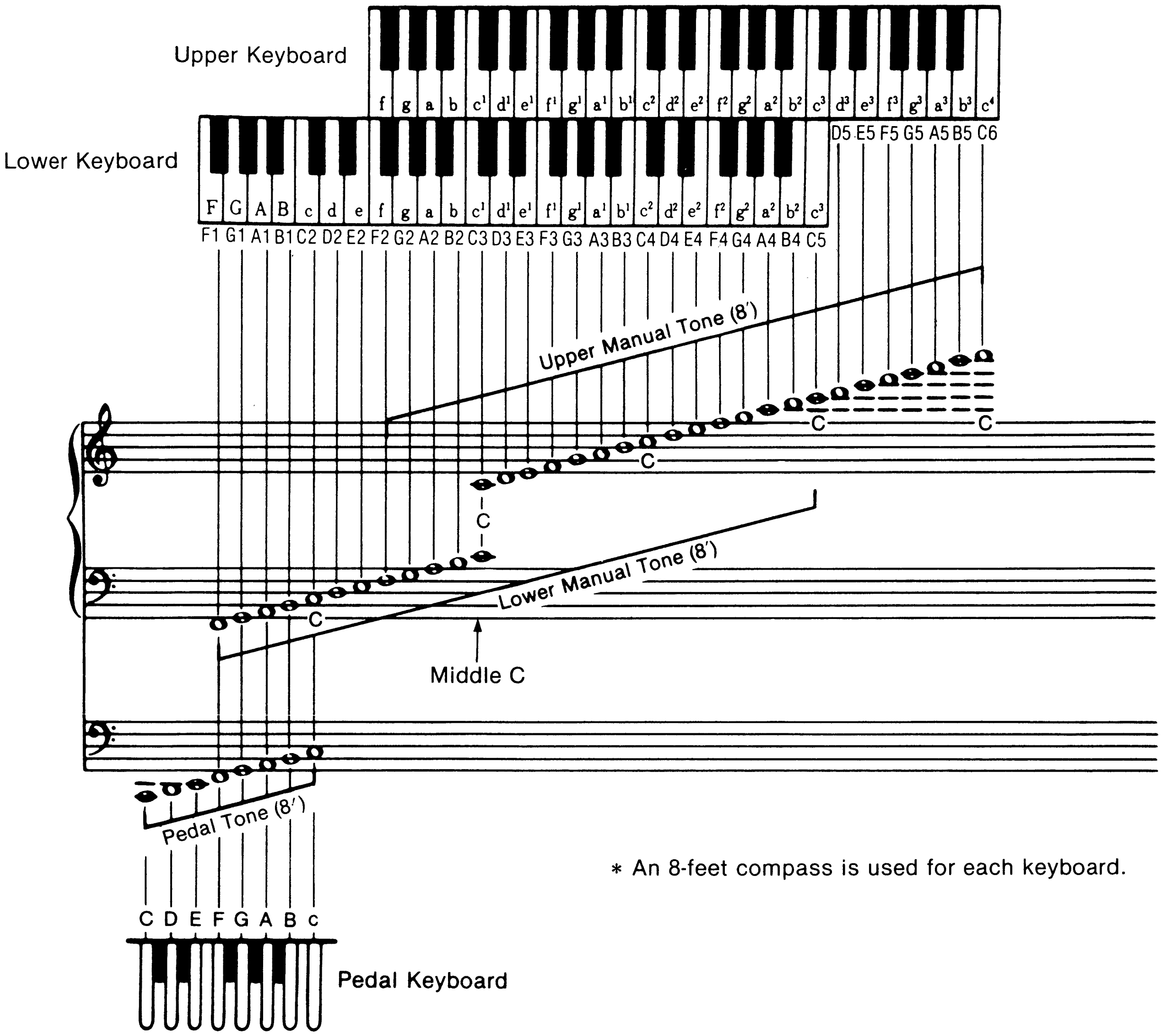
PRECAUTIONS BEFORE SERVICING

- **Important safety notice:**
  Components identified by ⚠ mark have special characteristics for safety.
  When replacing any of these components, use only manufacturer's specified parts.
- **Measuring of output waveforms**
  1. The waveform was measured by "National Digital Storage Oscilloscope VP-5730A". Therefore the waveforms of musical tone signals shown may somewhat change due to variation of timing of measure.
  2. The voltage shown in the photo is 1/10 of the actual value. However, the actual voltage is 10 times of as shown in this photo.
- Trouble often occur due to faulty operation of your electronic organ if you are not completely familiar with its mechanisms. Therefore, if your organ shows the following symptoms, please check the instrument before repair.

Phenomenon	Cause and remedy
The buttons, tablets, keyboards, etc. malfunction.	• Press the Fullband Setting Computer button first to turn it on and then depress the initial key on the lower keyboard. • If the buttons, tablets, keyboards, etc. do not return to normal, turn the power switch off once, then turn on again.
Voices of flute tablets do not sound.	The flute volume levels are adjustable for each individual tablet. If set to 0, however, the voice of the tablet will not sound. Adjust the flute tablets to the desired levels.
Different voices are heard in the lower and upper half keys on the upper keyboard.	The lower portion of the upper manual keyboard is used to sound the lower manual voices when the lower manual keyboard is required for programming functions.
A rhythm does not start or no rhythm sounds.	• No rhythm sounds if the drum percussion on button is turned off. • If the PCC button has no stored chords. No rhythm will start when turned on. Press the cancel button. • If the Composer button has no stored rhythm patterns, no rhythm will sound. Select other rhythm buttons.
The foot switch does not operate properly.	Any functional on and off operation other than the factory-presets is storable in the foot switch.
The tremolo speed is improper.	The fast multi-tremolo speed is preadjustable. Adjust to your favorite speed.
The contents of the Program Chord Computer, Fullband Setting Computer, etc. cannot be stored.	After pressing the record, depress the necessary buttons within 5 seconds. The record button turns off after a lapse of 5 seconds, making storage operation impossible. Press the record button again.
When storing the created tones and effects in the Voice Setting Computer, voices other than those desired are stored.	• To store your created tones and effects, press the 1 to 7 buttons of the Voice Setting Computer while the set button is held down. • To select your favorite voice from the 20 factory-preset voices, press the record button and depress one of the 1 to 7 buttons on the Voice Setting Computer within 5 seconds. Then press the key corresponding to the preferred voice of the keys 1 to 20 on the lower keyboard. Finally press the selected 1 to 7 button again.
Storage is not possible with the Program Chord Computer.	• Check that the PCC button is slowly flashing. Pressing the Fingered Mode button turns off the record button, making storage operation impossible. • Do not release the left hand (Chord designation) before pressing the measure keys (├─┤, ├┼┤, and ├┼┼┤).

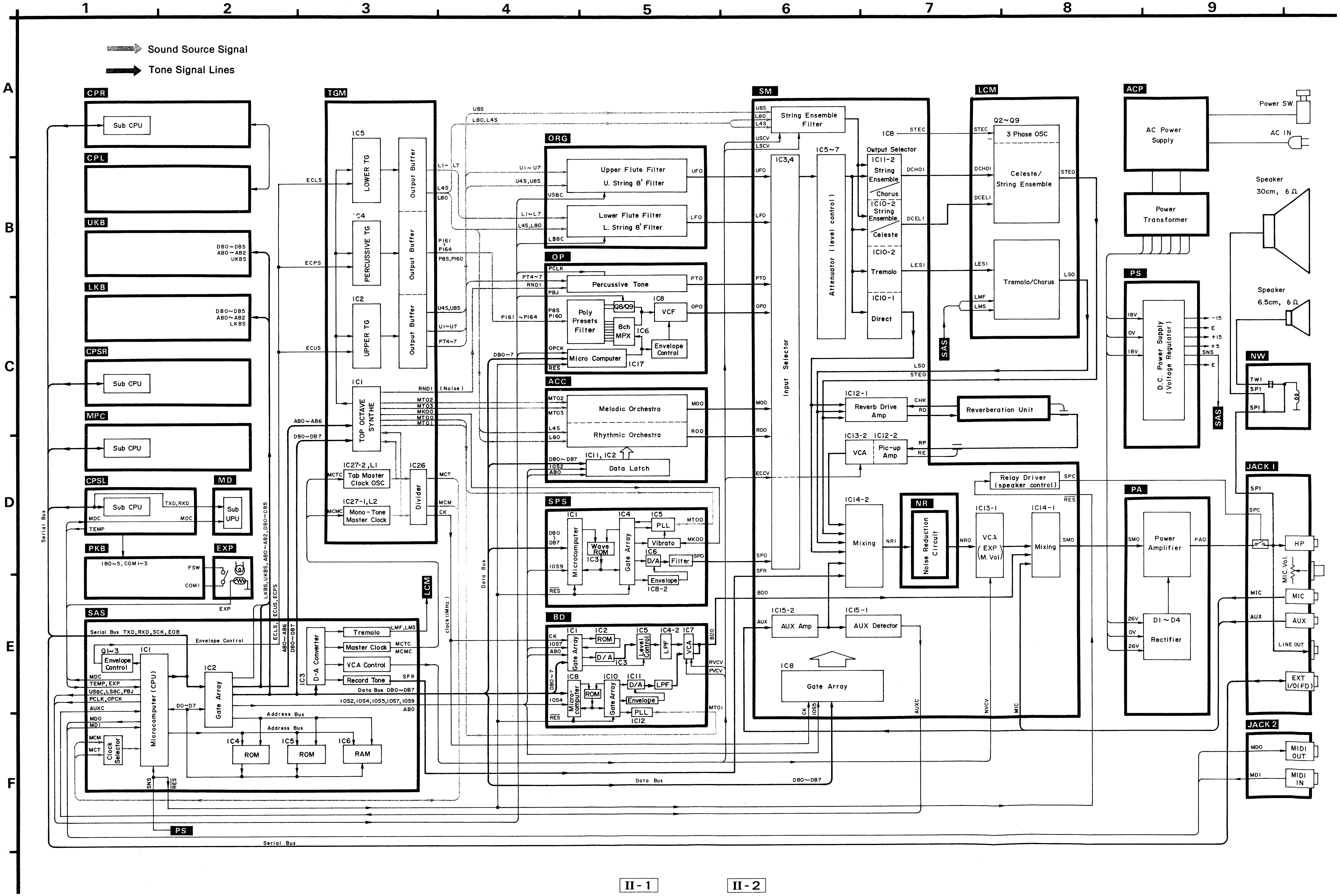
Phenomenon	Cause and remedy
When the rhythm stored in the Rhythm Composer is played, the Rhythmic Orchestra and automatic bass accompaniment do not sound.	•Store patterns in the rhythmic and melodic buttons of the Rhythmic Orchestra, just as you would with other rhythmic instrumental effects. •The bass of auto play chord sounds with a drum bass, which should be stored.
Programs cannot be stored in the Play Sequencer or the Full-band Setting Computer or playback is not possible.	•These functions need a digital memory pack. Insert the memory pack in the slot to the right of the upper keyboard. •Storage is not possible if the memory protector on the memory pack is turned on. Turn it off during storage operation.
The stored registration cannot be used when performance is started with the Play Sequencer button turned on.	To use the stored registration, turn on the Fullband Setting Computer button and then press the 1 key on the lower keyboard.
The stored introduction is not reproduced during automatic performance.	•Set the beginning of a song, such as an introduction before turning on the record button. •To add an introduction after the record button and Play Sequencer button flash, set it after turning on the Fullband Setting Computer button. Then turn off the Fullband Setting Computer button.
No storage is possible even when the record button and Play Sequencer button are slowly flashing.	•No storage is possible when the Fullband Setting Computer button is turned on. Turn it off before playing. •If any Play Sequencer button is lit, press the start/stop button for automatic performance of the stored part. Another part can then be stored.
The quick rhythm tempo is delayed when the Play Sequencer is used.	This occurs when too many tones are played at one time. Slow down the tempo (to about ♩ =250) or reduce the number of tones played at a time.
Different tones and effects are stored in the Fullband Setting Computer (FSC).	If the Voice Setting Computer (VSC) function is selected, the stored contents in this button are stored into the FSC. When the tones and effects selected by the VSC are changed, store them in the VSC again before storage in the FSC.
The cabinet and slide cover become heated to some degree.	The Technics organ has a built-in power source that heats the cabinet and slide cover to some degree. This is not an indication of trouble.
Nine or more keys of upper or lower keyboard are simultaneously depressed, only 8 keys make sound.	It is designed so that upper and lower keyboards can make sound only up to 8 keys when harmonic coupler is not provided. • Priority is given to 8 keys of higher-pitched sound.
Upper or lower keyboard makes sound only to 4 tones.	With harmonic coupler provided, each keyboard can simultaneously sound only up to 4 tones. • Priority is given to 4 keys of higher-pitched sound.
To octave sounds of flute 2′, $1^{1}/_{3}$′, 1′ are repeated.	The top octave C key of flute 2′, F∿C keys (8 keys) in the top octave part of flute $1^{1}/_{3}$′, and top octave keys (C∿C) of flute 1′ are designed to be repeated.

KEYBOARD RANGES


Upper Keyboard
f g a b c^1 d^1 e^1 f^1 g^1 a^1 b^1 c^2 d^2 e^2 f^2 g^2 a^2 b^2 c^3 d^3 e^3 f^3 g^3 a^3 b^3 c^4
Lower Keyboard
F G A B c d e f g a b c^1 d^1 e^1 f^1 g^1 a^1 b^1 c^2 d^2 e^2 f^2 g^2 a^2 b^2 c^3
D5 E5 F5 G5 A5 B5 C6
F1 G1 A1 B1 C2 D2 E2 F2 G2 A2 B2 C3 D3 E3 F3 G3 A3 B3 C4 D4 E4 F4 G4 A4 B4 C5
Upper Manual Tone (8′)
C
C
C
C
Lower Manual Tone (8′)
C
Middle C
Pedal Tone (8′)
C D E F G A B c
Pedal Keyboard

∗ An 8-feet compass is used for each keyboard.

TOTAL BLOCK DIAGRAM



1
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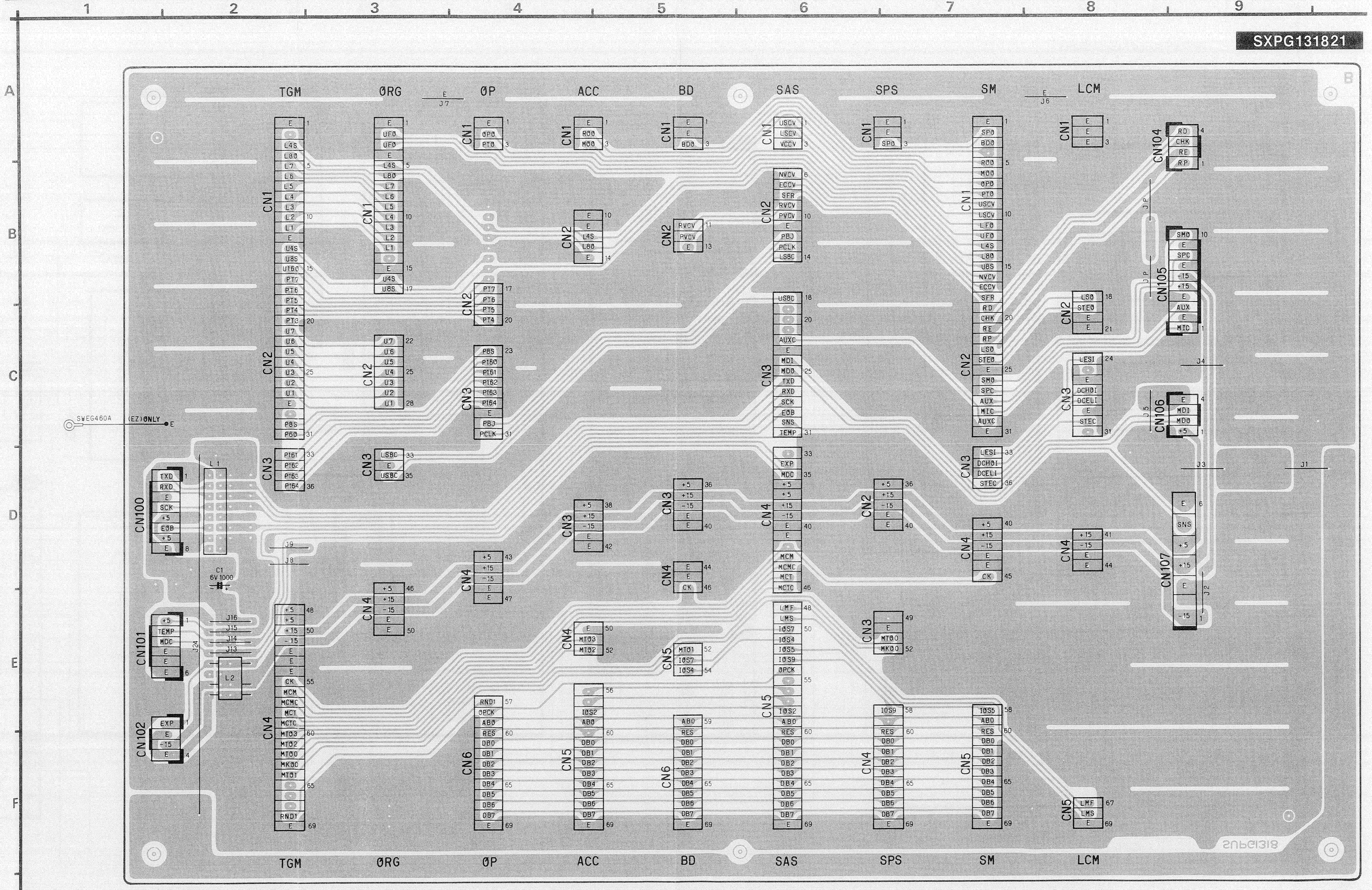
4
5
6
7
8
9
A
B
C
D
E
F
Sound Source Signal
Tone Signal Lines
CPR
Sub CPU
CPL
UKB
DB0~DB5
AB0~AB2
UKBS
LKB
LKBS
CPSR
MPC
CPSL
TXD, RXD
MDC
TEMP
MD
Sub UPU
PKB
IB0~5, COM I~3
FSW
COMI
EXP
Serial Bus
SAS
Serial Bus TXD, RXD, SCK, EOB
Envelope Control
Q1~3
Envelope Control
IC1
Microcomputer (CPU)
IC2
Gate Array
D0~D7
TEMP, EXP
USBC, LSBC, PBJ
PCLK, OPCK
AUXC
MDO
MDI
MCM
MCT
Clock Selector
SNS
RES
Address Bus
IC4
ROM
IC5
ROM
IC6
RAM
IC3
D-A Converter
Tremolo
Master Clock
VCA Control
Record Tone
LMF, LMS
MCTC
MCMC
SFR
Data Bus DB0~DB7
IOS2, IOS4, IOS5, IOS7, IOS9
AB0
ECLS, ECUS, ECPS
AB0~AB6
DB0~DB7
LKBS, UKBS, AB0~AB2, DB0~DB5
PS
TGM
IC5
LOWER TG
Output Buffer
IC4
PERCUSSIVE TG
IC2
UPPER TG
IC1
TOP OCTAVE SYNTHE
ECLS
ECPS
ECUS
AB0~AB6
DB0~DB7
IC27-2, L1
Tab Master Clock OSC
IC27-1, L2
Mono-Tone Master Clock
IC26
Divider
MCTC
MCMC
MCT
MCM
CK
RNDI (Noise)
MT02
MT03
MK00
MT00
MT01
L1~L7
L4S
L80
P161
P164
P8S, P160
U4S, U8S
U1~U7
PT4~7
clock (1MHz)
LCM
Data Bus
UBS
L80, L4S
ORG
Upper Flute Filter
U. String 8' Filter
Lower Flute Filter
L. String 8' Filter
U1~U7
U4S, U8S
USBC
L1~L7
L4S, L80
LSBC
UFO
LFO
OP
PCLK
PBJ
PT4~7
RNDI
Percussive Tone
PTO
P8S
P160
P161~P164
Poly Presets Filter
Q8/Q9
8ch MPX
IC8
VCF
OPO
IC6
Envelope Control
OPCK
Micro Computer
IC17
RES
DB0~7
ACC
MT02
MT03
Melodic Orchestra
MOO
L4S
L80
Rhythmic Orchestra
ROO
IC11, IC2
DB0~DB7
IOS2
AB0
Data Latch
SPS
IC1
Microcomputer
IC4
Gate Array
IC5
PLL
MT00
Wave ROM
IC3
Vibrato
MK00
IC6
D/A
Filter
SPO
Envelope
IC8-2
DB0~DB7
IOS9
RES
BD
IC1
Gate Array
IC2
ROM
IC5
Level Control
IC4-2
LPF
IC7
VCA
CK
IOS7
AB0
D/A
IC3
BDO
RVCV
PVCV
IC8
Micro-computer
IC10
Gate Array
IC11
D/A
LPF
ROM
Envelope
PLL
IC12
IOS4
MT01
SM
UBS
L80
L4S
USCV
LSCV
String Ensemble Filter
IC8
STEC
IC3, 4
IC5~7
Attenuator (level control)
Output Selector
IC11-2
String Ensemble
Chorus
IC10-2
String Ensemble
Celeste
IC10-2
Tremolo
IC10-1
Direct
DCHOI
DCELI
LESI
UFO
LFO
PTO
OPO
MOO
ROO
ECCV
SPO
SFR
BDO
AUX
Input Selector
LSO
STEO
IC12-1
Reverb Drive Amp
CHK
RD
Reverberation Unit
IC13-2
VCA
IC12-2
Pic-up Amp
RP
RE
Relay Driver (speaker control)
SPC
RES
IC14-2
Mixing
NRI
NR
Noise Reduction Circuit
NRO
IC13-1
VCA (EXP M. Vol)
IC14-1
Mixing
SMO
IC15-2
AUX Amp
IC15-1
AUX Detector
IC8
Gate Array
CK
IOS5
AUXC
NVCV
MIC
Data Bus
DB0~DB7
LCM
Q2~Q9
3 Phase OSC
STEC
DCHOI
DCELI
Celeste/String Ensemble
STEO
LESI
LMF
LMS
Tremolo/Chorus
LSO
SAS
ACP
AC Power Supply
Power Transformer
Power SW.
AC IN
Speaker 30cm, 6Ω
Speaker 6.5cm, 6Ω
PS
18V
0V
18V
D.C. Power Supply (Voltage Regulator)
-15
E
+15
+5
SNS
E
NW
TW1
SP1
SP1
SAS
JACK 1
SP1
SPC
HP
MIC Vol.
MIC
MIC
AUX
AUX
LINE OUT
EXT I/O (FD)
PA
SMO
Power Amplifier
PAO
26V
0V
26V
D1~D4
Rectifier
JACK 2
MDO
MIDI OUT
MDI
MIDI IN
Serial Bus

MOTHER CIRCUIT BOARD

SXPG131821


1
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A
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C
D
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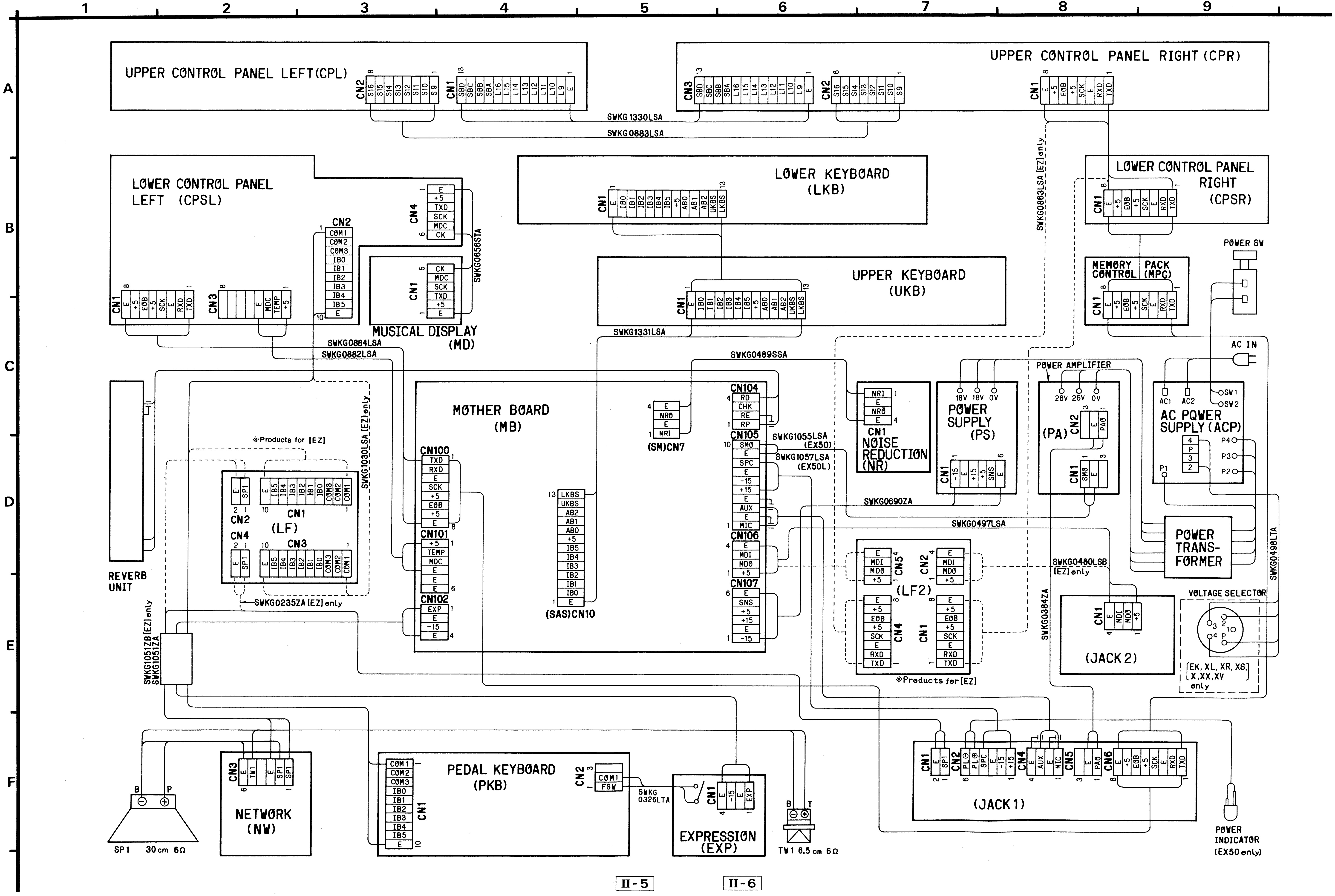
F
TGM
ORG
OP
ACC
BD
SAS
SPS
SM
LCM
CN1
CN2
CN3
CN4
CN5
CN6
CN100
CN101
CN102
CN104
CN105
CN106
CN107
J1
J2
J3
J4
J5
J6
J7
J8
J9
J13
J14
J15
J16
J24
L1
L2
C1
6V 1000
SWEG460A
(EZ)ONLY
E
B
SUPG1318

WIRING CONNECTION DIAGRAM


1
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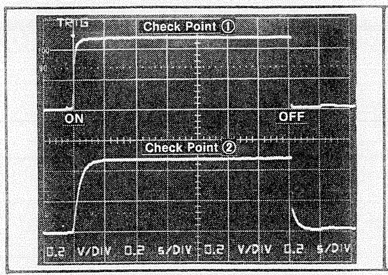
A
B
C
D
E
F
UPPER CONTROL PANEL LEFT(CPL)
CN2 S16 S15 S14 S13 S12 S11 S10 S9
CN1 SBD SBC SBB SBA L16 L15 L14 L13 L12 L11 L10 L9 E
UPPER CONTROL PANEL RIGHT (CPR)
CN3 SBD SBC SBB SBA L16 L15 L14 L13 L12 L11 L10 L9 E
CN2 S16 S15 S14 S13 S12 S11 S10 S9
CN1 E +5 E0B +5 SCK E RXD TXD
SWKG1330LSA
SWKG0883LSA
LOWER CONTROL PANEL LEFT (CPSL)
CN4 E +5 TXD SCK MDC CK
SWKG0656STA
CN2 COM1 COM2 COM3 IB0 IB1 IB2 IB3 IB4 IB5 E
CN1 E +5 E0B +5 SCK E RXD TXD
CN3 E MDC TEMP +5
MUSICAL DISPLAY (MD)
CN1 CK MDC SCK TXD +5 E
LOWER KEYBOARD (LKB)
CN1 E IB0 IB1 IB2 IB3 IB4 IB5 +5 AB0 AB1 AB2 UKBS LKBS
UPPER KEYBOARD (UKB)
CN1 E IB0 IB1 IB2 IB3 IB4 IB5 +5 AB0 AB1 AB2 UKBS LKBS
SWKG1331LSA
LOWER CONTROL PANEL RIGHT (CPSR)
CN1 E +5 E0B +5 SCK E RXD TXD
MEMORY CONTROL PACK (MPC)
CN1 E +5 E0B +5 SCK E RXD TXD
SWKG0863LSA [EZ] only
POWER SW
AC IN
SWKG0884LSA
SWKG0882LSA
SWKG0489SSA
REVERB UNIT
※Products for [EZ]
(LF)
CN2 E SP1
CN1 E IB5 IB4 IB3 IB2 IB1 IB0 COM3 COM2 COM1
CN4 E SP1
CN3 E IB5 IB4 IB3 IB2 IB1 IB0 COM3 COM2 COM1
SWKG1030LSA [EZ] only
SWKG0235ZA [EZ] only
MOTHER BOARD (MB)
CN100 TXD RXD E SCK +5 E0B +5 E
CN101 +5 TEMP MDC E E E
CN102 EXP E -15 E
(SM)CN7 E NR0 E NRI
(SAS)CN10 LKBS UKBS AB2 AB1 AB0 +5 IB5 IB4 IB3 IB2 IB1 IB0 E
CN104 RD CHK RE RP
CN105 SM0 E SPC E -15 +15 E AUX E MIC
CN106 E MDI MD0 +5
CN107 E SNS +5 +15 E -15
SWKG1055LSA (EX50)
SWKG1057LSA (EX50L)
NOISE REDUCTION (NR)
CN1 NRI E NR0 E
POWER SUPPLY (PS)
18V 18V 0V
CN1 -15 E +15 +5 SNS E
POWER AMPLIFIER (PA)
26V 26V 0V
CN2 E PA0
CN1 SM0 E
AC POWER SUPPLY (ACP)
AC1 AC2 SW1 SW2 P1 P2 P3 P4
4 P 3 2
SWKG0690ZA
SWKG0497LSA
POWER TRANSFORMER
SWKG0498LTA
(LF2)
CN5 E MDI MD0 +5
CN2 E MDI MD0 +5
CN4 E +5 E0B +5 SCK E RXD TXD
CN1 E +5 E0B +5 SCK E RXD TXD
※Products for [EZ]
SWKG0480LSB [EZ] only
SWKG0384ZA
(JACK 2)
CN1 E MDI MD0 +5
VOLTAGE SELECTOR
[EK, XL, XR, XS, X, XX, XV] only
SWKG1051ZB [EZ] only
SWKG1051ZA
NETWORK (NW)
CN3 E TW1 E SP1 SP1
SP1 30cm 6Ω
B P
PEDAL KEYBOARD (PKB)
CN1 COM1 COM2 COM3 IB0 IB1 IB2 IB3 IB4 IB5 E
CN2 COM1 FSW
SWKG 0326LTA
EXPRESSION (EXP)
CN1 E -15 E EXP
TW1 6.5cm 6Ω
B T
(JACK 1)
CN1 E SP1
CN2 PL⊖ PL⊕ SPC E -15 E
CN4 AUX E MIC
CN5 E PA0
CN6 E +5 E0B +5 SCK E RXD TXD
POWER INDICATOR (EX50 only)

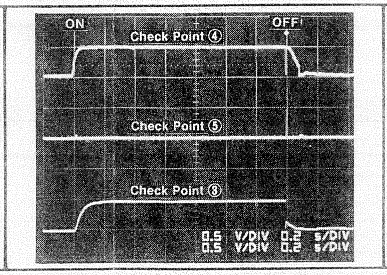
SYSTEM ASSIGNER CIRCUIT BOARD

①, ②



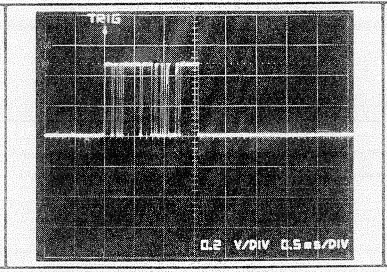
- Power SW............................ON-OFF

③, ④, ⑤



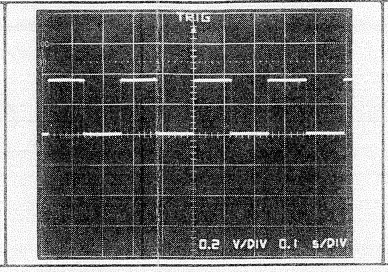
- Power SW............................ON-OFF

⑥

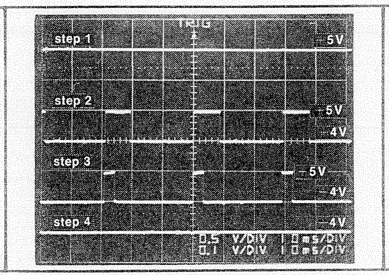


- Upper Tab Voices...............Flute 8'
- Upper Key............................ON

⑦

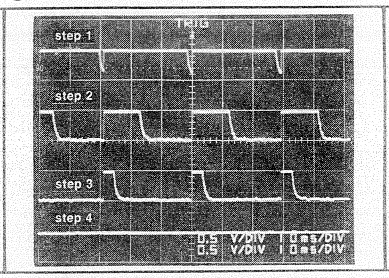


⑧ ECPS



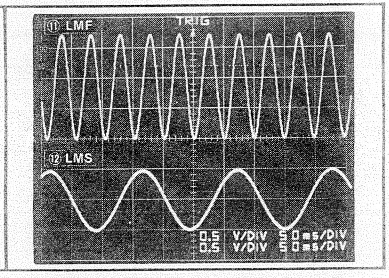
- Poly Presets Sustain Control
- Step 1 (short)~Step 4 (long)

⑨ ECLS, ⑩ ECUS



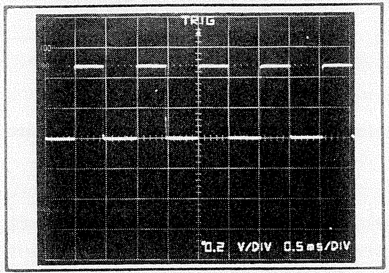
- Upper & Lower Sustain Control
- Step 1 (short)~Step 4 (long)

⑪ LMF, ⑫ LMS

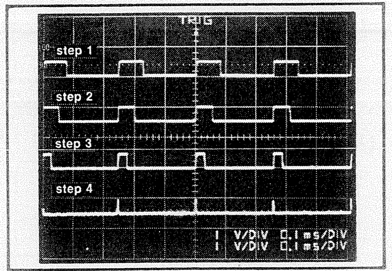


- Tremolo ....ON

⑬, ⑭ Master Clock Control

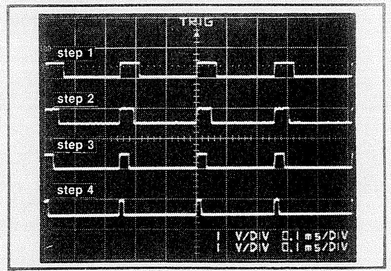


⑮ Main Vol., EXP Control

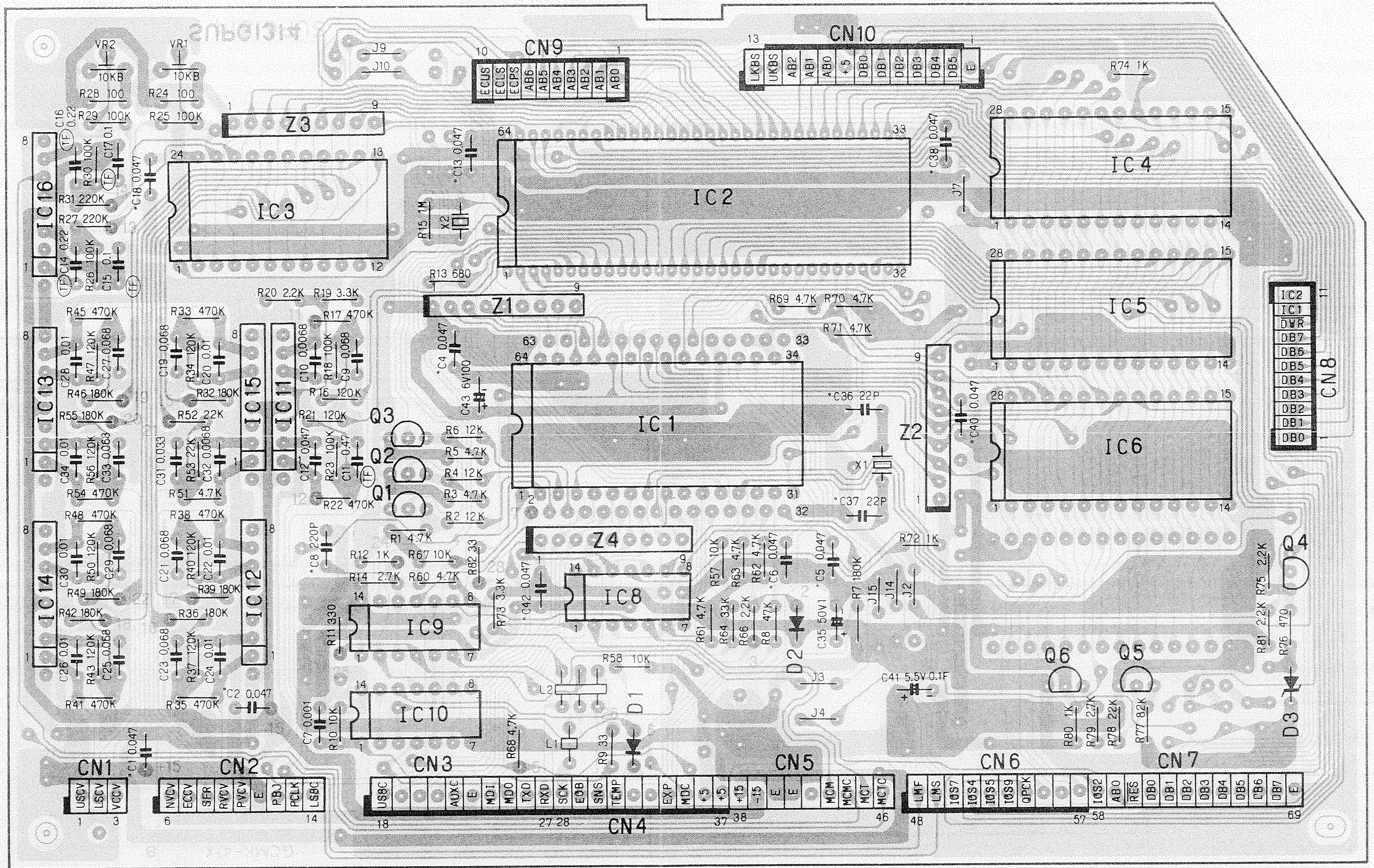


- EXP Pedal...........................Max.
- Main Vol............................step 1 (min)~
  step 4 (max)
- Upper Key...........................ON

⑯ Bass Volume Control

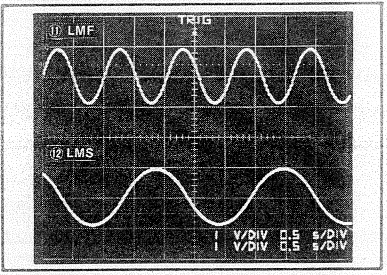


- Main Vol., EXP...................Max.
- Bass...8' • Bass Key...ON
- Bass Vol.........................step 1~4


CN9
CN10
VR2 10KB
VR1 10KB
Z3
IC3
IC2
IC4
IC16
IC5
Z1
IC13
IC15
IC11
IC1
IC6
CN8
Z2
Q3
Q2
Q1
Q4
Z4
IC14
IC12
IC8
IC9
IC10
Q6
Q5
D1
D2
D3
X1
X2
CN1
CN2
CN3
CN4
CN5
CN6
CN7
ECUS
ECLS
ECPS
LKBS
DWR

SXPG131411

⑪ LMF, ⑫ LMS



- Chorus ....ON

NOTES:

- IC'S

IC1:	SVIG7810H
IC2:	SVIGM6050211
IC3:	SVIG65002017
IC4:	SVIG02EX50-A
IC5:	SVIG02EX50-B
IC6:	SVIGD446415L
IC8:	SVIGM74LS03
IC9:	SVIGM53216
IC10:	SVIGTC74HC04
IC11~16:	SVIGM5218L

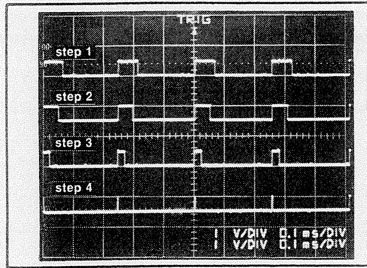
- TRANSISTORS

Q1~3, 6:	2SA933STRS
Q4:	2SC1047C
Q5:	2SC2320LFG

- DIODES

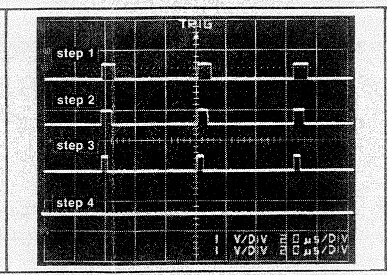
D1, 2:	MA165TA5
D3:	MA4036H

⑰ Rhythm Volume Control



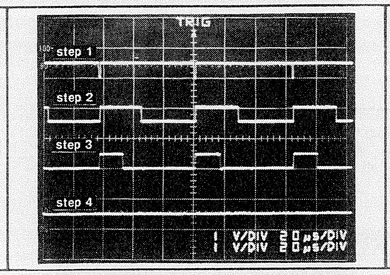
- Main Vol., EXP...................Max.
- Rhythm ....start
- Rhythm Vol. ....step 1~4

⑱, ㉒ U & L String Ensemble Volume Control



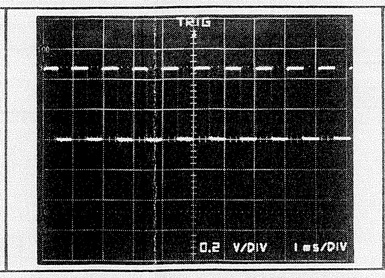
- U/L String Ensemble..........ON
- Upper/Lower Key...............ON
- Volume...............................step 1~4

⑲ Reverb Volume Control



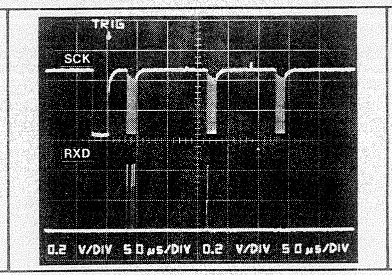
- Reverb Volume ....step 1~4

㉑ Record Signal

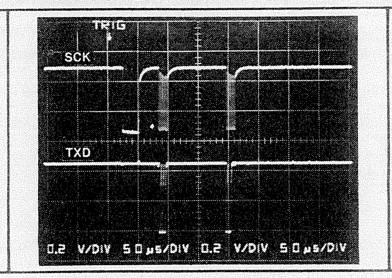


- Record SW ....ON
- Rhythm Sequencer..............ON
- LKB C3

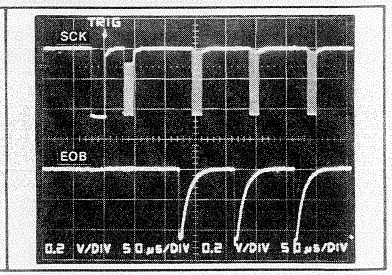
㉕ SCK, ㉓ RXD



㉕ SCK, ㉔ TXD

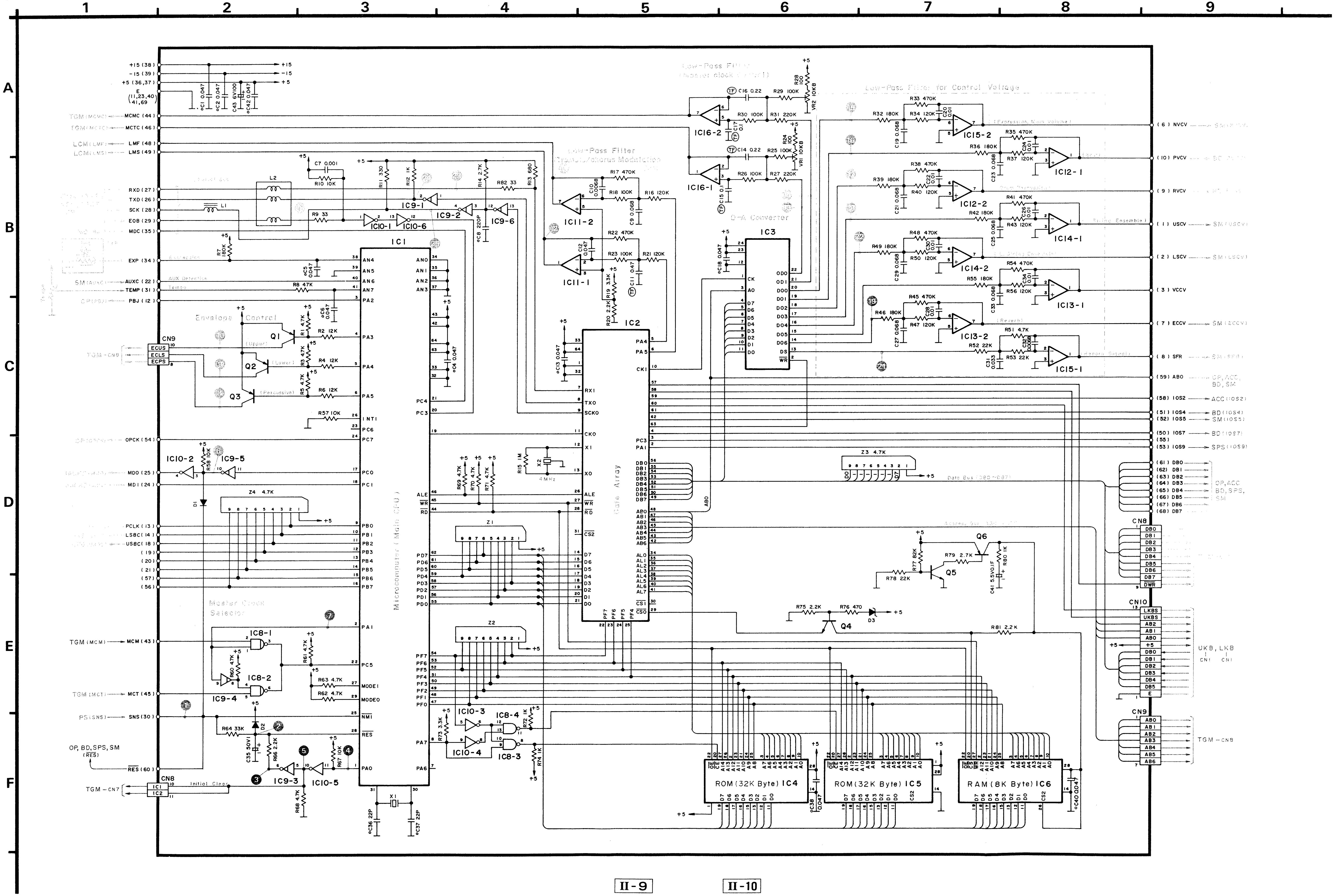


㉕ SCK, ㉖ EOB



SAS

SYSTEM ASSIGNER CIRCUIT DIAGRAM

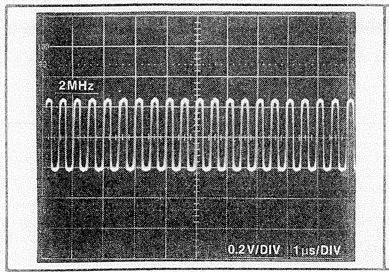

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
+15 (38)
-15 (39)
+5 (36,37)
E (11,23,40, 41,69)
TGM (MCMC) MCMC (44)
TGM (MCTC) MCTC (46)
LCM (LMF) LMF (48)
LCM (LMS) LMS (49)
RXD (27)
TXD (26)
SCK (28)
EOB (29)
MDC (35)
EXP (34)
SM (AUXC) AUXC (22)
TEMP (31)
PBJ (12)
CN9
ECUS
ECLS
ECPS
TGM - CN8
Envelope Control
Q1
Q2
Q3
(Upper)
(Lower)
(Percussive)
OPCK (54)
MDO (25)
MDI (24)
IC10-2
IC9-5
D1
Z4 4.7K
PCLK (13)
LS8C (14)
US8C (18)
(19)
(20)
(21)
(57)
(56)
Master Clock Selector
TGM (MCM) MCM (43)
IC8-1
IC8-2
IC9-4
TGM (MCT) MCT (45)
PS (SNS) SNS (30)
R64 33K
D2
C35 50V1
R66 2.2K
IC9-3
IC10-5
R68 4.7K
R67 10K
OP, BD, SPS, SM (RES)
RES (60)
CN8
TGM - CN7
IC1
IC2
Initial Clear
IC1
Microcomputer (Main CPU)
X1
C36 22P
C37 22P
L1
L2
R9 33
C7 0.001
R10 10K
R11 330
R12 1K
R14 2.7K
R82 33
R13 680
IC9-1
IC9-2
IC9-6
IC10-1
IC10-6
C8 220P
Low-Pass Filter (Tremolo/chorus Modulation)
IC11-2
IC11-1
R17 470K
R18 100K
R16 120K
R22 470K
R23 100K
R21 120K
R19 3.3K
R20 2.2K
Z1
Z2
IC10-3
IC10-4
IC8-4
IC8-3
R72 1K
R73 3.3K
R74 1K
R69 4.7K
R70 4.7K
R71 4.7K
R15 1M
X2
4MHz
IC2
Gate Array
Low-Pass Filter (Master clock control)
IC16-2
IC16-1
C16 0.22
C14 0.22
R29 100K
R30 100K
R31 220K
R25 100K
R26 100K
R27 220K
R28 100
R24 100
VR2 10KB
VR1 10KB
D-A Converter
IC3
Low-Pass Filter for Control Voltage
IC15-2
IC12-1
IC12-2
IC14-1
IC14-2
IC13-1
IC13-2
IC15-1
(Expression, Main Volume)
(Ensemble)
(Reverb)
(Sound Signal)
(6) NVCV
(10) PVCV
(9) RVCV
(1) USCV
(2) LSCV
(3) VCCV
(7) ECCV
(8) SFR
(59) AB0
(58) IOS2
(51) IOS4
(52) IOS5
(50) IOS7
(55)
(53) IOS9
OP, ACC, BD, SM
ACC (IOS2)
BD (IOS4)
SM (IOS5)
BD (IOS7)
SPS (IOS9)
Z3 4.7K
Data Bus (DB0~DB7)
Address Bus (AB0~AB6)
(61) DB0
(62) DB1
(63) DB2
(64) DB3
(65) DB4
(66) DB5
(67) DB6
(68) DB7
OP, ACC, BD, SPS, SM
CN8
Q6
Q5
Q4
R77 82K
R78 22K
R79 2.7K
R80 1K
C41 5.5V0.1F
R75 2.2K
R76 470
D3
R81 2.2K
CN10
LKBS
UKBS
UKB, LKB CN1 CN1
CN9
TGM - CN8
ROM (32K Byte) IC4
ROM (32K Byte) IC5
RAM (8K Byte) IC6
C38 0.047
C40 0.047

TGM TONE GENERATOR MODULE CIRCUIT BOARD

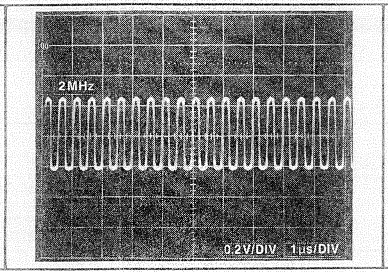
1 2 3 4 5 6 7 8 9

A B C D E F

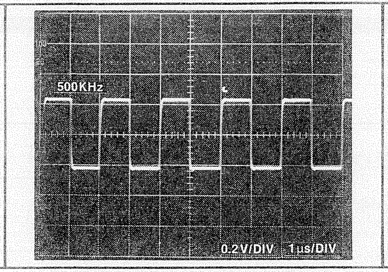
① Tab Master Clock (2MHz)



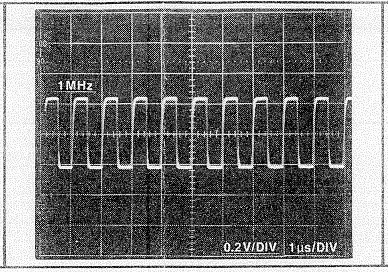
② Mono-Tone Master Clock



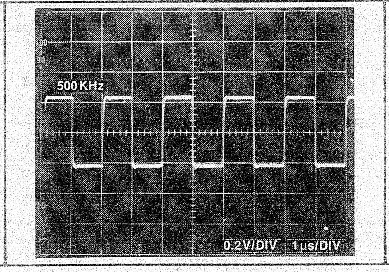
③ Tab Clock (500KHz)



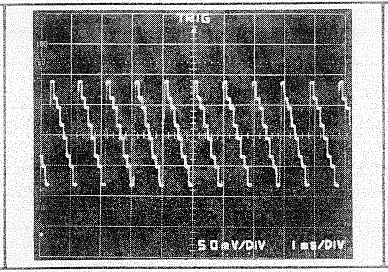
④ CK (1MHz)



⑤ Mono-Tone Clock

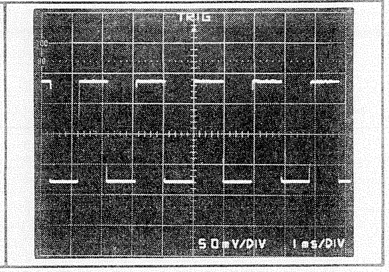


⑥ L4S



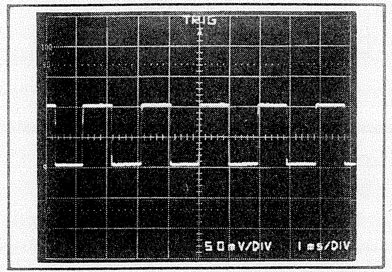
- Lower Key C4

⑦ L80



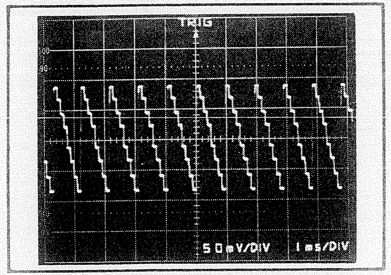
- Lower Key C4

⑧ L4 (L1～L7)



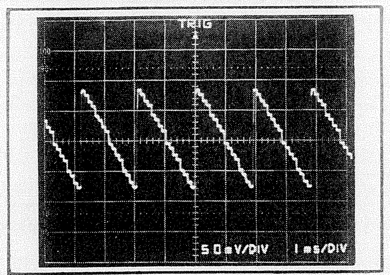
- Lower Tab Voices .... Flute 8'
- Lower Key C4

⑨ U4S

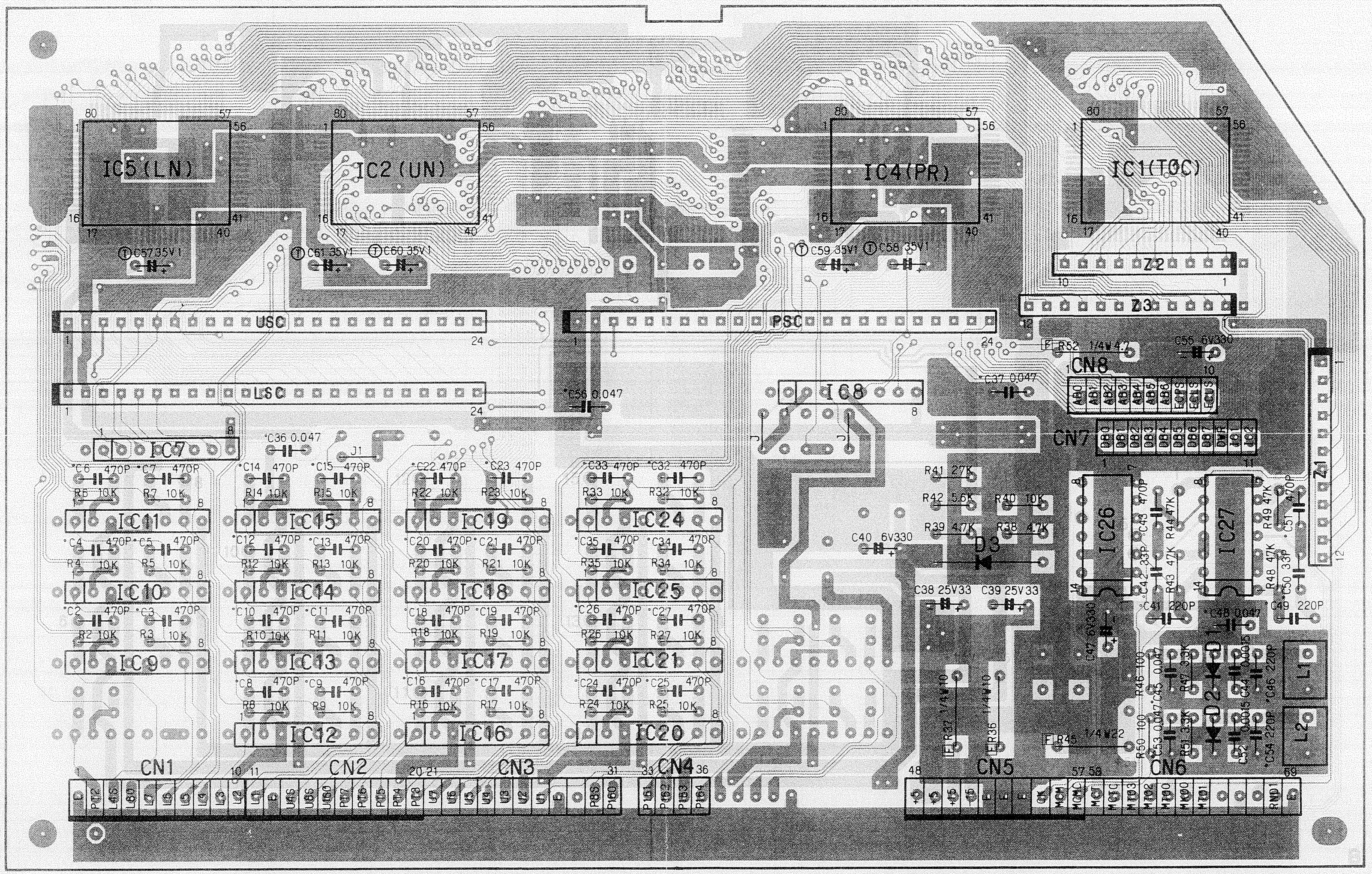


- Upper Key......................... C4

⑩ U8S



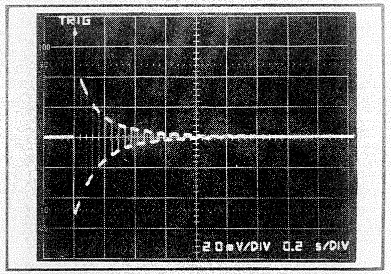
- Upper Key......................... C4


IC5 (LN)
IC2 (UN)
IC4 (PR)
IC1 (TOC)
Z2
Z3
USC
PSC
LSC
CN8
CN7
IC8
IC7
Z1
IC11
IC15
IC19
IC24
IC10
IC14
IC18
IC25
IC9
IC13
IC17
IC21
IC12
IC16
IC20
IC26
IC27
D3
L1
L2
CN1
CN2
CN3
CN4
CN5
CN6

SXPG131511

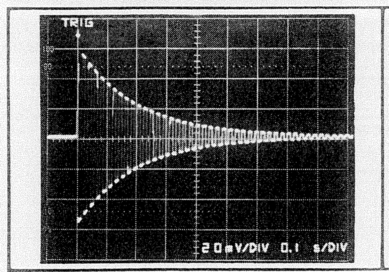
NOTES:
- IC'S
  - IC1: SVIGUPD6303G
  - IC2, 4, 5: SVIGUPD6304G
  - IC7～21, 24, 25: SVIGM5218L
  - IC26: SVIGTC40H393
  - IC27: SVIGTC40H004
- DIODES
  - D1, 2: MA165TA5
  - D3: SVDGRK14

⑮ P163 (P161～P164)



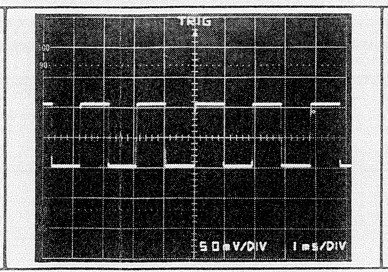
- U. Poly Presets .... Piano
- Upper Key......................... C4
- Sustain Control .... step 3

⑪ PT5 (PT4～PT7)



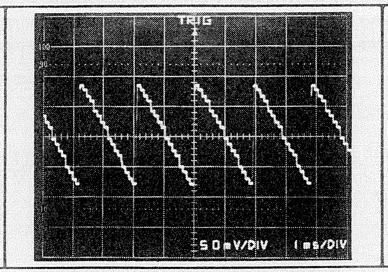
- Percussive Tone .... 4'
- Upper Key......................... C4

⑫ U4 (U1～U7)



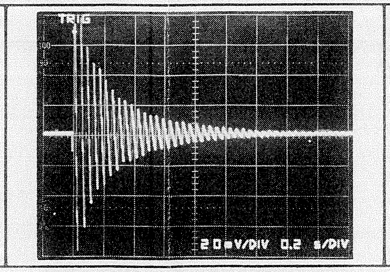
- Upper Tab Voices.............. Flute 8'
- Upper Key C4

⑬ P8S



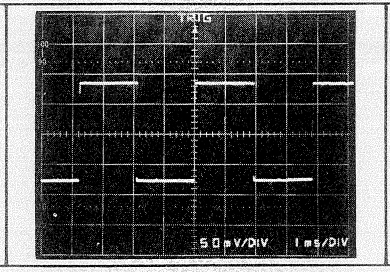
- U. Poly Presets .... Trombone
- Upper Key......................... C4

⑬ P8S



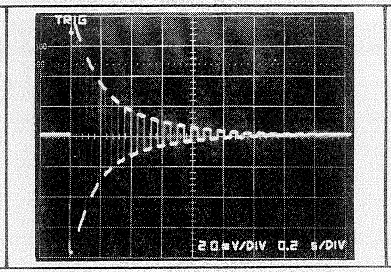
- U. Poly Presets .... Piano
- Upper Key......................... C4
- Sustain Control .... step 3

⑭ P160



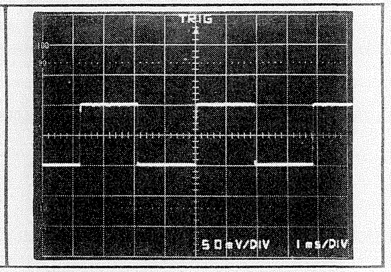
- U. Poly Presets .... Trombone
- Upper Key......................... C4

⑭ P160



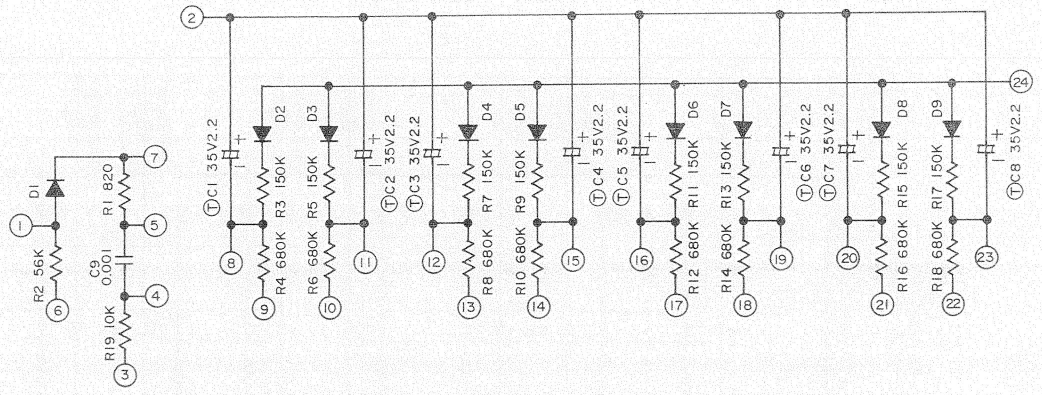
- U. Poly Presets .... Piano
- Upper Key......................... C4
- Sustain Control .... step 3

⑮ P163 (P161～P164)



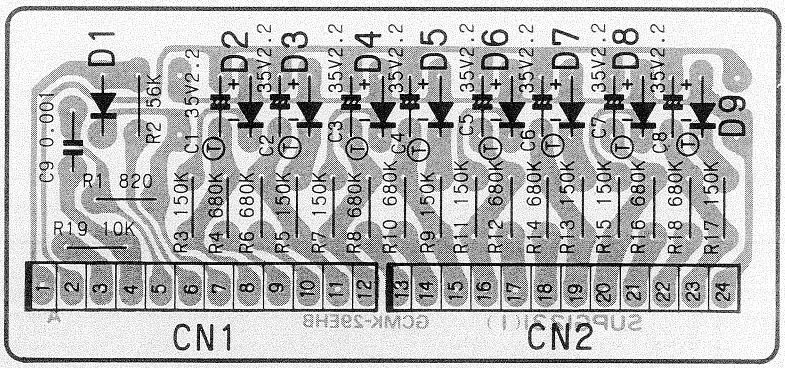
- U. Poly Presets .... Trombone
- Upper Key......................... C4

USC UPPER TG SUSTAIN CONTROL CIRCUIT



D1
R1 820
R2 56K
C9 0.001
R19 10K
C1 35V2.2
C2 35V2.2
C3 35V2.2
C4 35V2.2
C5 35V2.2
C6 35V2.2
C7 35V2.2
C8 35V2.2
D2
D3
D4
D5
D6
D7
D8
D9
R3 150K
R4 680K
R5 150K
R6 680K
R7 150K
R8 680K
R9 150K
R10 680K
R11 150K
R12 680K
R13 150K
R14 680K
R15 150K
R16 680K
R17 150K
R18 680K

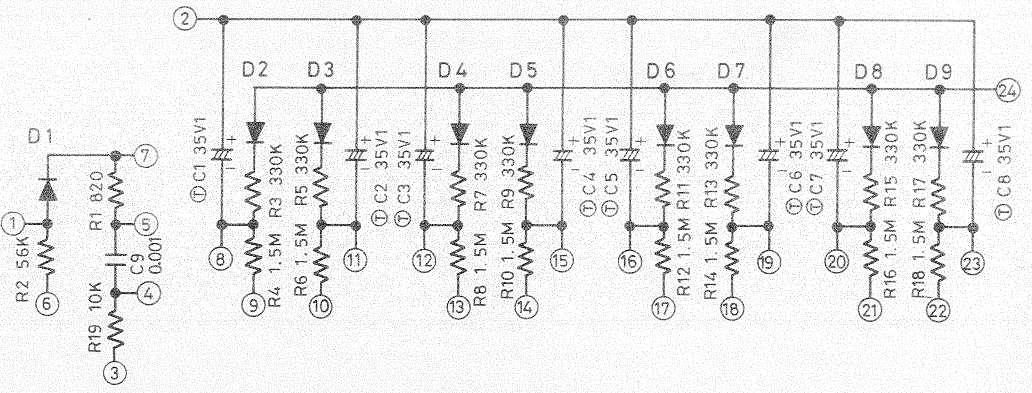
NOTES:
- DIODES
  D1~9: MA150TA5



D1
D2
D3
D4
D5
D6
D7
D8
D9
C9 0.001
R2 56K
R1 820
R19 10K
CN1
CN2
GCMK-29EHB
SUPG1231(1)

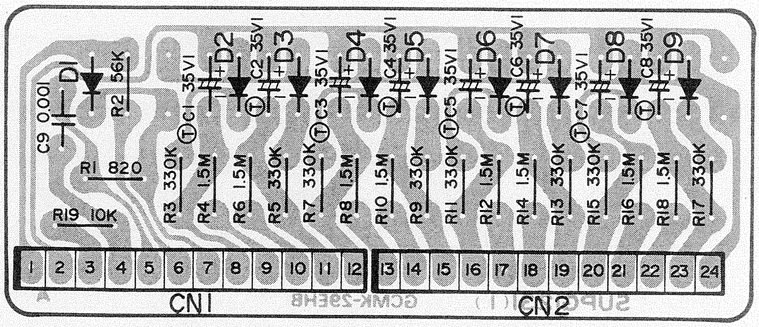
SXPG123131

LSC LOWER TG SUSTAIN CONTROL CIRCUIT



D1
R1 820
R2 56K
C9 0.001
R19 10K
D2
D3
D4
D5
D6
D7
D8
D9
C1 35V1
C2 35V1
C3 35V1
C4 35V1
C5 35V1
C6 35V1
C7 35V1
C8 35V1
R3 330K
R4 1.5M
R5 330K
R6 1.5M
R7 330K
R8 1.5M
R9 330K
R10 1.5M
R11 330K
R12 1.5M
R13 330K
R14 1.5M
R15 330K
R16 1.5M
R17 330K
R18 1.5M

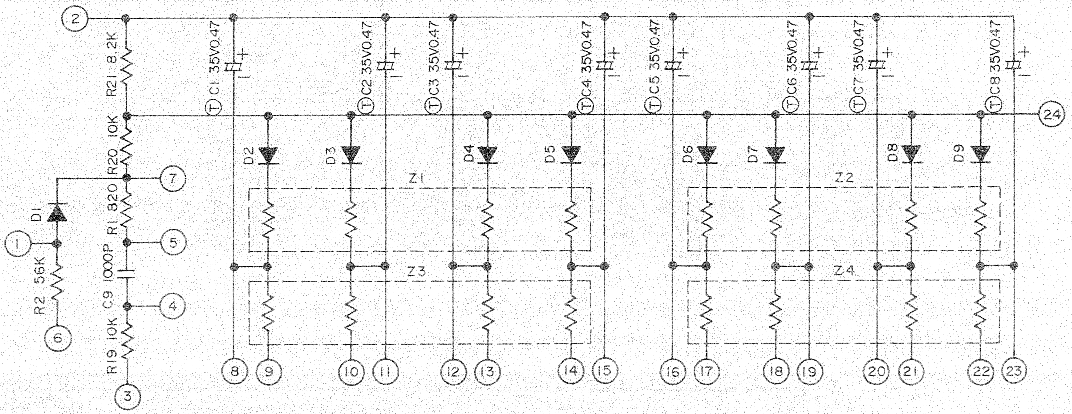
NOTES:
- DIODES
  D1~9: MA150TA5



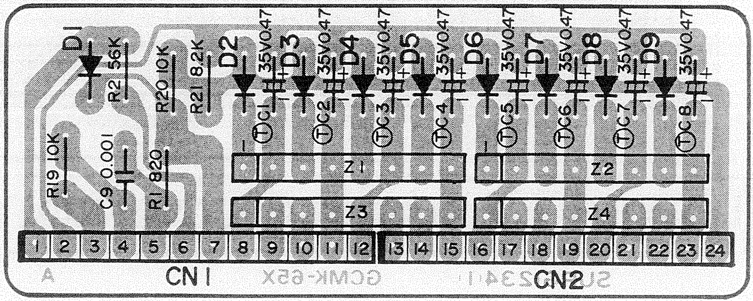
D1
D2
D3
D4
D5
D6
D7
D8
D9
C9 0.001
R2 56K
RI 820
RI9 10K
CN1
CN2
GCMK-29EHB
SUPG1231(1)

SXPG12311

PERCUSSIVE TG SUSTAIN CONTROL CIRCUIT


R21 8.2K
R20 10K
R1 820
C9 1000P
R19 10K
R2 56K
D1
D2
D3
D4
D5
D6
D7
D8
D9
C1 35V0.47
C2 35V0.47
C3 35V0.47
C4 35V0.47
C5 35V0.47
C6 35V0.47
C7 35V0.47
C8 35V0.47
Z1
Z2
Z3
Z4
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
⑰
⑱
⑲
⑳
㉑
㉒
㉓
㉔

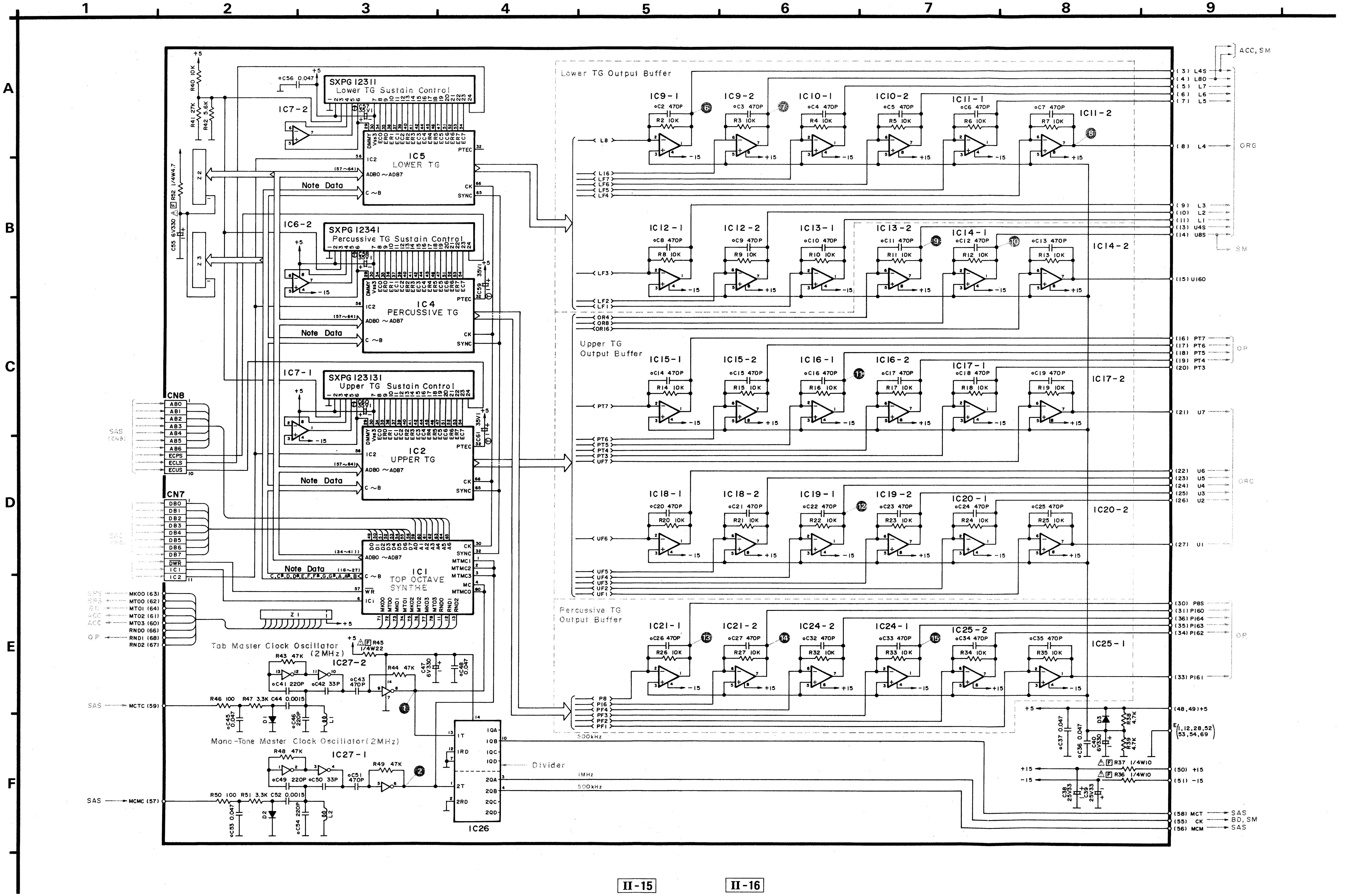
SXPG12341


D1
R2 56K
R20 10K
R21 8.2K
R19 10K
C9 0.001
R1 820
D2
D3
D4
D5
D6
D7
D8
D9
C1
C2
C3
C4
C5
C6
C7
C8
35V0.47
Z1
Z2
Z3
Z4
1 2 3 4 5 6 7 8 9 10 11 12
13 14 15 16 17 18 19 20 21 22 23 24
A
CN1
CN2
GCMK-65X
SU2341

NOTES:
- DIODES
  D1～9: MA150TA5

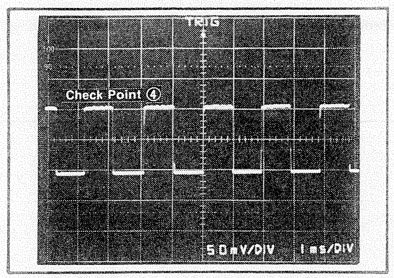
TGM

TONE GENERATOR MODULE CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
SXPG 12311
Lower TG Sustain Control
IC7-2
IC5
LOWER TG
ADB0 ~ ADB7
Note Data
CK
SYNC
PTEC
SXPG 12341
Percussive TG Sustain Control
IC6-2
IC4
PERCUSSIVE TG
SXPG 123131
Upper TG Sustain Control
IC7-1
IC2
UPPER TG
IC1
TOP OCTAVE SYNTHE
MTMC1
MTMC2
MTMC3
MC
MTMC0
Z1
Z2
Z3
R40 10K
R41 27K
R42 5.6K
R52 1/4W4.7
C55 6V330
C56 0.047
CN8
AB0
AB1
AB2
AB3
AB4
AB5
AB6
ECPS
ECLS
ECUS
SAS (CN9)
CN7
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
DWR
IC1
IC2
MK00 (63)
MT00 (62)
MT01 (64)
MT02 (61)
MT03 (60)
RND0 (66)
RND1 (68)
RND2 (67)
OP
Tab Master Clock Oscillator (2MHz)
IC27-2
R43 47K
R44 47K
R45 1/4W22
C41 220P
C42 33P
C43 470P
C47 6V330
C48 0.047
SAS
MCTC (59)
R46 100
R47 3.3K
C44 0.0015
C45 0.047
C46 220P
D1
L1
Mono-Tone Master Clock Oscillator (2MHz)
IC27-1
R48 47K
R49 47K
C49 220P
C50 33P
C51 470P
MCMC (57)
R50 100
R51 3.3K
C52 0.0015
C53 0.047
C54 220P
D2
L2
IC26
Divider
500kHz
1MHz
500kHz
Lower TG Output Buffer
IC9-1
IC9-2
IC10-1
IC10-2
IC11-1
IC11-2
IC12-1
IC12-2
IC13-1
IC13-2
IC14-1
IC14-2
L8
L16
LF7
LF6
LF5
LF4
LF3
LF2
LF1
OR4
OR8
OR16
Upper TG Output Buffer
IC15-1
IC15-2
IC16-1
IC16-2
IC17-1
IC17-2
PT7
PT6
PT5
PT4
PT3
UF7
IC18-1
IC18-2
IC19-1
IC19-2
IC20-1
IC20-2
UF6
UF5
UF4
UF3
UF2
UF1
Percussive TG Output Buffer
IC21-1
IC21-2
IC24-2
IC24-1
IC25-2
IC25-1
P8
P16
PF4
PF3
PF2
PF1
(3) L4S
(4) L80
(5) L7
(6) L6
(7) L5
ACC, SM
(8) L4
ORG
(9) L3
(10) L2
(11) L1
(13) U4S
(14) U8S
SM
(15) U160
(16) PT7
(17) PT6
(18) PT5
(19) PT4
(20) PT3
OP
(21) U7
(22) U6
(23) U5
(24) U4
(25) U3
(26) U2
ORG
(27) U1
(30) P8S
(31) P160
(36) P164
(35) P163
(34) P162
OP
(33) P161
(48,49) +5
E/(1,12,28,52 53,54,69)
C37 0.047
C36 0.047
C40 6V330
D3
R38 4.7K
R39 4.7K
R37 1/4W10
R36 1/4W10
C38 25V33
C39 25V33
(50) +15
(51) -15
(58) MCT
(55) CK
(56) MCM
SAS
BD, SM
SAS

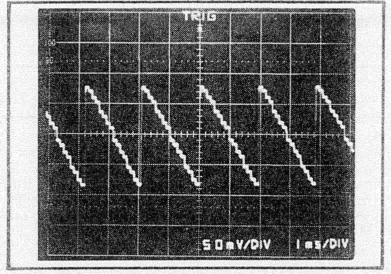
ORGAN CIRCUIT BOARD

❶, ❷, ❸, ❹, ❺, ❻, ❼



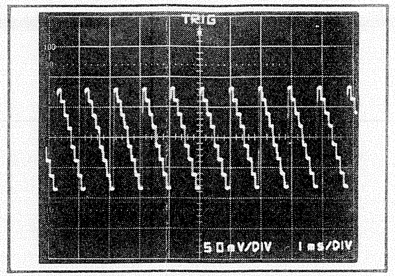
- Upper Tab............................Flute 8′
- Upper Key............................C4

❽



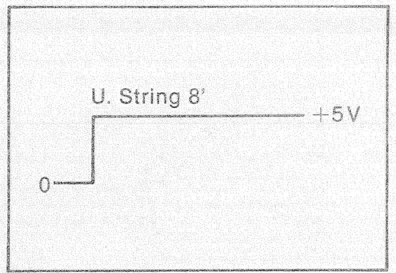
- Upper Tab............................String 8′
- Upper Key............................C4

❾



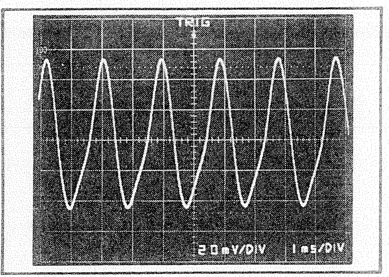
- Upper Tab
- Upper Key............................C4

US8C Terminal

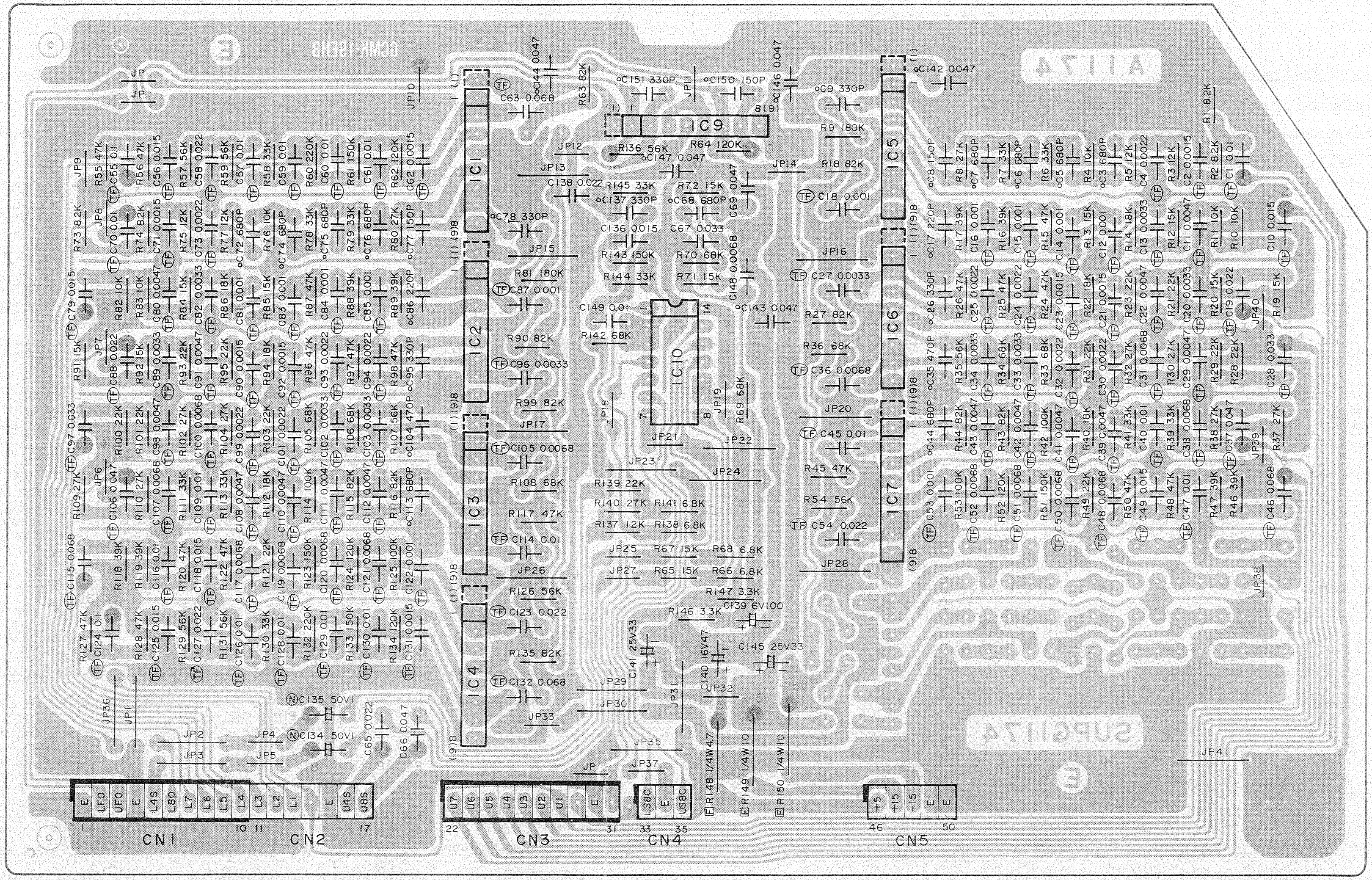

U. String 8′
+5V
0

- Upper Tab............................String 8′

❿



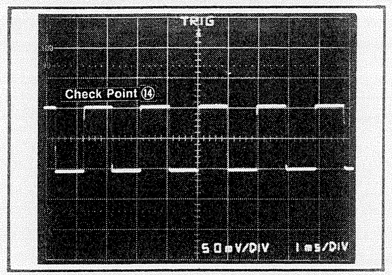
- Upper Tab............................Flute 8′
- Upper Key............................C4


IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC9
IC10
CN1
CN2
CN3
CN4
CN5
A1174
SUPG1174
GCMK-19EHB

SXPG117451

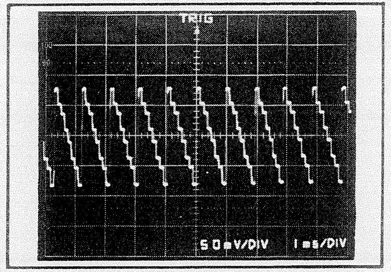
NOTES:
- IC'S
  - IC1∼7, 9: SVIGM5218L
  - IC10: SVIGUPD4066B

⓫, ⓬, ⓭, ⓮, ⓯, ⓰, ⓱



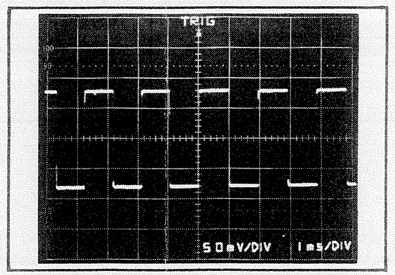
- Lower Tab ....Flute 8′
- Lower Key C4

⓲



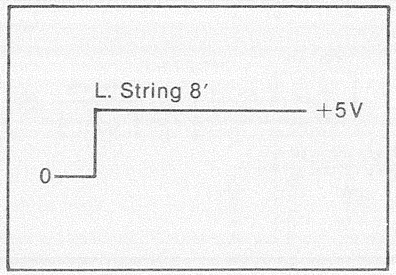
- Lower Tab
- Lower Key C4

⓳



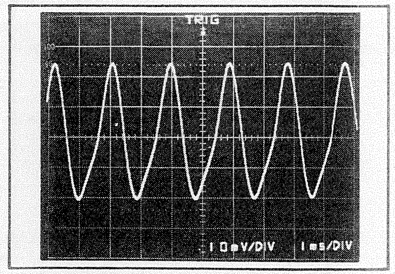
- Lower Tab ....String 8′
- Lower Key C4

LS8C Terminal


L. String 8′
+5V
0

- Lower Tab ....String 8′

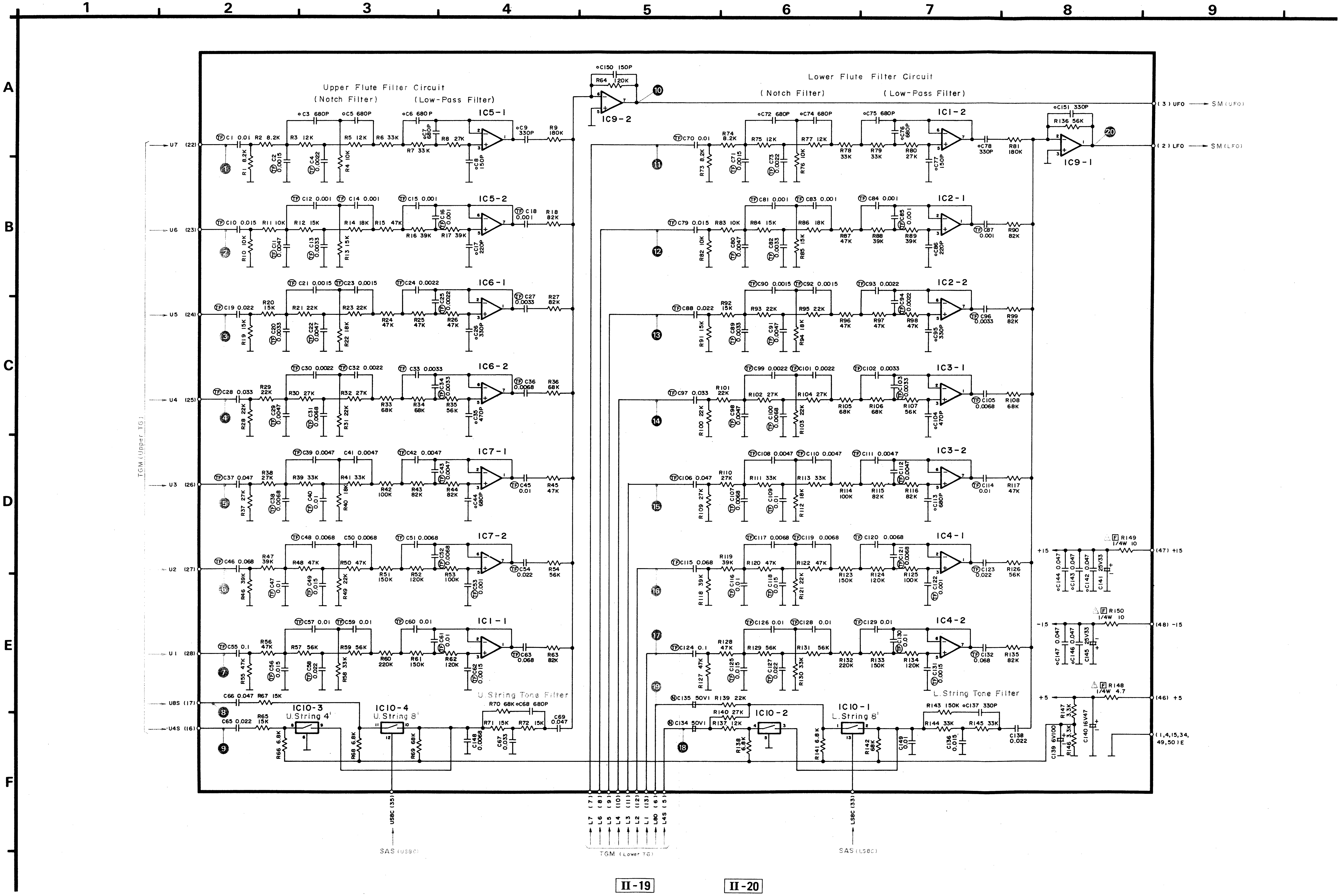
⓴



- Lower Tab ....Flute 8′
- Lower Key C4

ORG

ORGAN CIRCUIT DIAGRAM

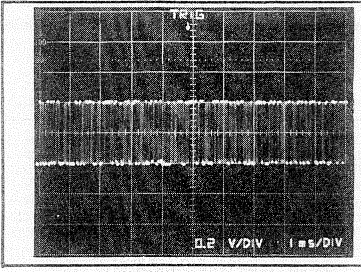

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Upper Flute Filter Circuit
(Notch Filter)
(Low-Pass Filter)
Lower Flute Filter Circuit
(Notch Filter)
(Low-Pass Filter)
IC5-1
IC5-2
IC6-1
IC6-2
IC7-1
IC7-2
IC1-1
IC9-2
IC1-2
IC2-1
IC2-2
IC3-1
IC3-2
IC4-1
IC4-2
IC9-1
IC10-3 U.String 4'
IC10-4 U.String 8'
IC10-2
IC10-1 L.String 8'
U.String Tone Filter
L.String Tone Filter
C150 150P
R64 120K
C151 330P
R136 56K
U7 (22)
U6 (23)
U5 (24)
U4 (25)
U3 (26)
U2 (27)
U1 (28)
U8S (17)
U4S (16)
TGM (Upper TG)
(3) UFO → SM (UFO)
(2) LFO → SM (LFO)
(47) +15
(48) -15
(46) +5
(1,4,15,34, 49,50) E
+15
-15
+5
R149 1/4W 10
R150 1/4W 10
R148 1/4W 4.7
USBC (35)
SAS (USBC)
LSBC (33)
SAS (LSBC)
L7 (7)
L6 (8)
L5 (9)
L4 (10)
L3 (11)
L2 (12)
L1 (13)
L8O (6)
L4S (5)
TGM (Lower TG)

OP ORCHESTRAL & PERCUSSIVE PRESETS CIRCUIT BOARD

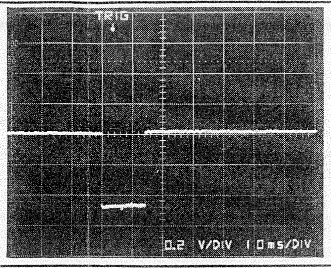
1 2 3 4 5 6 7 8 9

A B C D E F

❶ Noise Signal

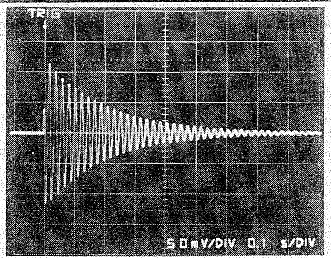


❷



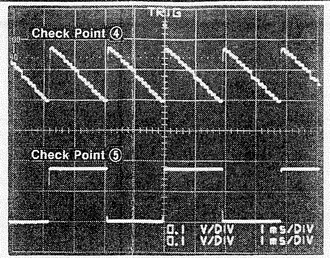
- Upper Tab..........................Click
- Upper Key..........................ON

❸ Percussive Tone



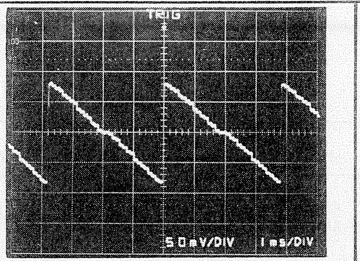
- Percussive Tone..................4′
- Upper Key..........................C4

❹, ❺



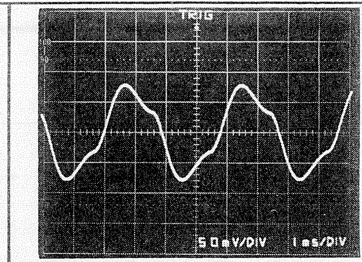
- Upper Poly Presets...........Trombone
- Upper Key..........................C4

Q2 Emitter



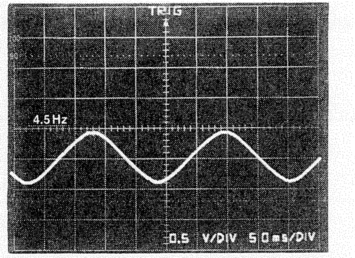
- Upper Poly Presets...........Trombone
- Upper Key..........................C4

❻



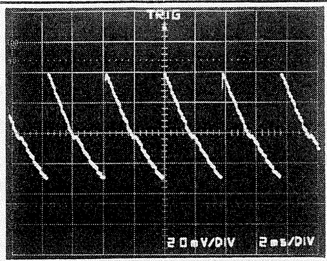
- Upper Poly Presets...........Trombone
- Upper Key..........................C4

❼



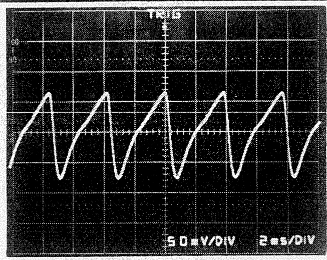
- Upper Poly Presets...........Vibraphone

❽



- Upper Poly Presets...........Trombone
- Upper Key..........................C4

❾



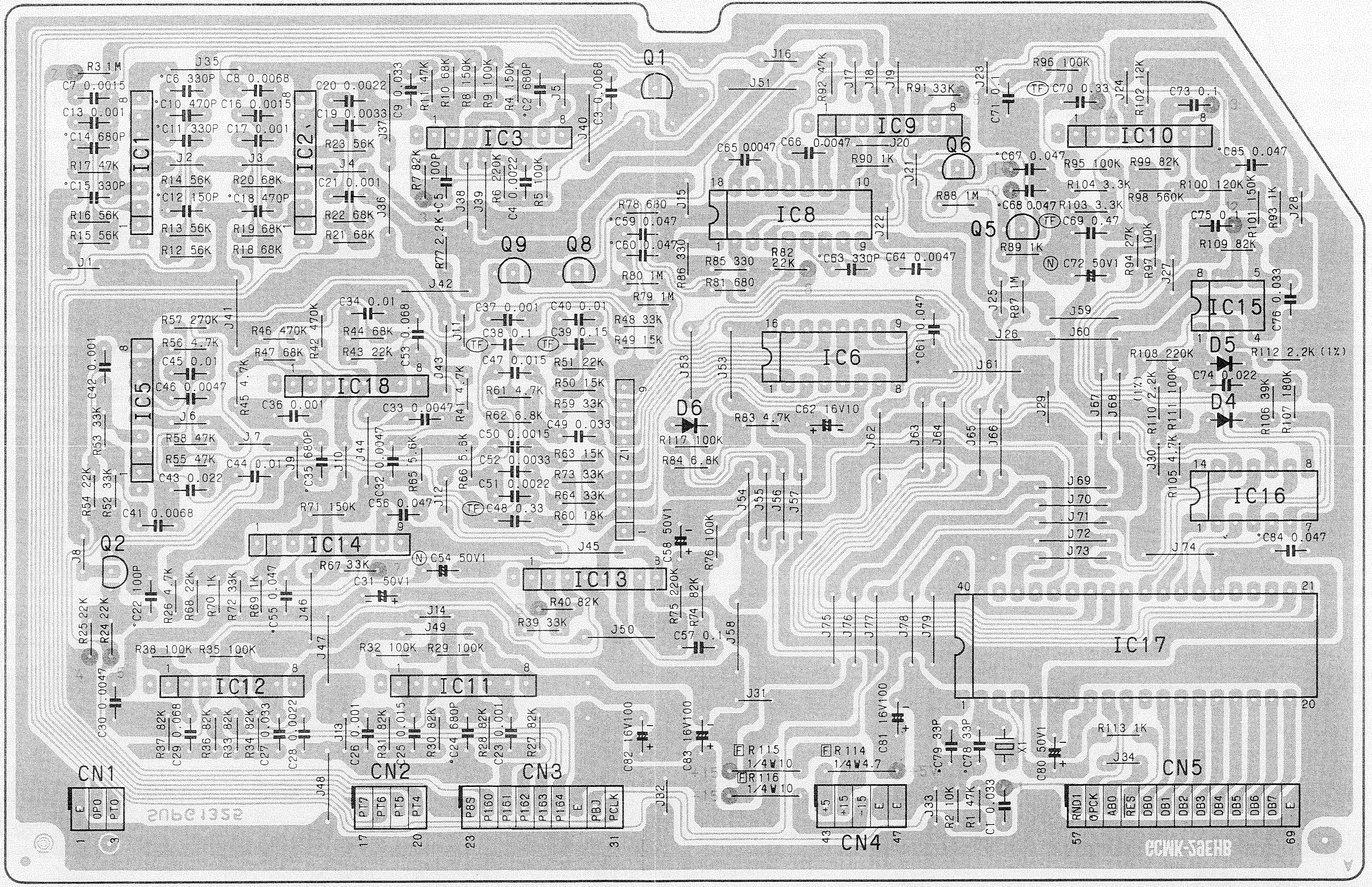
- Upper Poly Presets...........Trombone
- Upper Key..........................C4

❿ Q5: 24dB/OCT

- Trombone, Saxophone, Clarinet, Wah Brass, Piano, Vibraphone

⓫ Q6: 12dB/OCT

- Accordion, Harpsichord, Guitar, Banjo



SXPG132511

NOTES:
- IC'S
  - IC1~3, 5, 9~13, 18: SVIGM5218L
  - IC6: SVIGHD14051B
  - IC8: SVIGBA6704
  - IC14: SVIGBA6110
  - IC15: SVIGNJM082D
  - IC16: SVIGTC40H004
  - IC17: SVIGM8041111
- TRANSISTORS
  - Q1, 5, 6, 8, 9: 2SJ40CD
  - Q2: 2SC2320LFG
- DIODES
  - D4~6: MA165TA5

IC6: 8ch Multiplexer

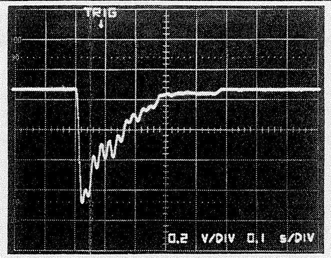
Poly Presets	A	B	C	INH
Trombone	0	0	0	0
Saxophone	1	0	0	0
Accrdion	0	1	0	0
Clarinet	1	1	0	0
Wah Brass	0	0	1	0
Piano	1	0	1	0
Harpsichord	0	1	1	0
Vibraphone	1	1	1	0

0: 0V 1: +5V

⓭, ⓮

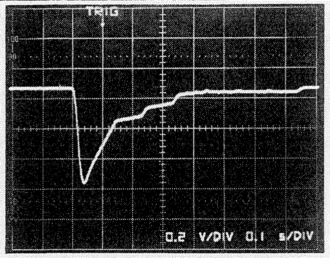
Poly Presets	⓮	⓭
Trombone	1.1V	−2.9V
Saxophone	0V	−6.2V
Accordion	0.9V	−8.2V
Clarinet	0.6V	−5.9V
Wah Brass	1.9V	−0.3V
Piano	1.1V	−4.4V
Harpsichord	1.1V	−10.0V
Vibraphone	0V	−5.9V
Guitar	1.4V	−3.6V
Banjo	1.1V	−10.0V

⓬ Envelope Control Trombone



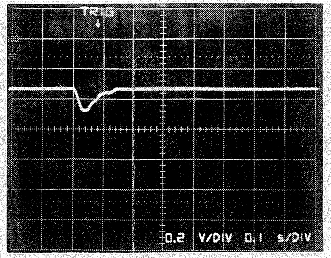
- Upper Poly Presets...........Trombone
- Upper Key..........................ON

⓬ Saxophone



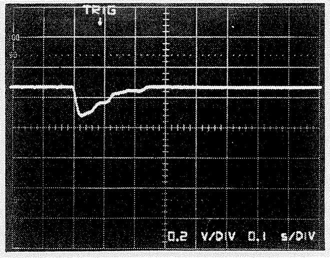
- Upper Poly Presets...........Saxophone
- Upper Key..........................ON

⓬ Accordion



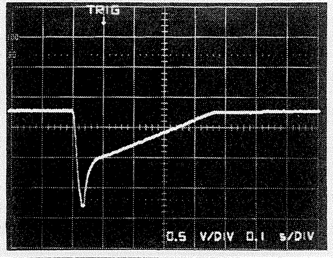
- Upper Poly Presets...........Accordion
- Upper Key..........................ON

⓬ Clarinet



- Upper Poly Presets...........Clarinet
- Upper Key..........................ON

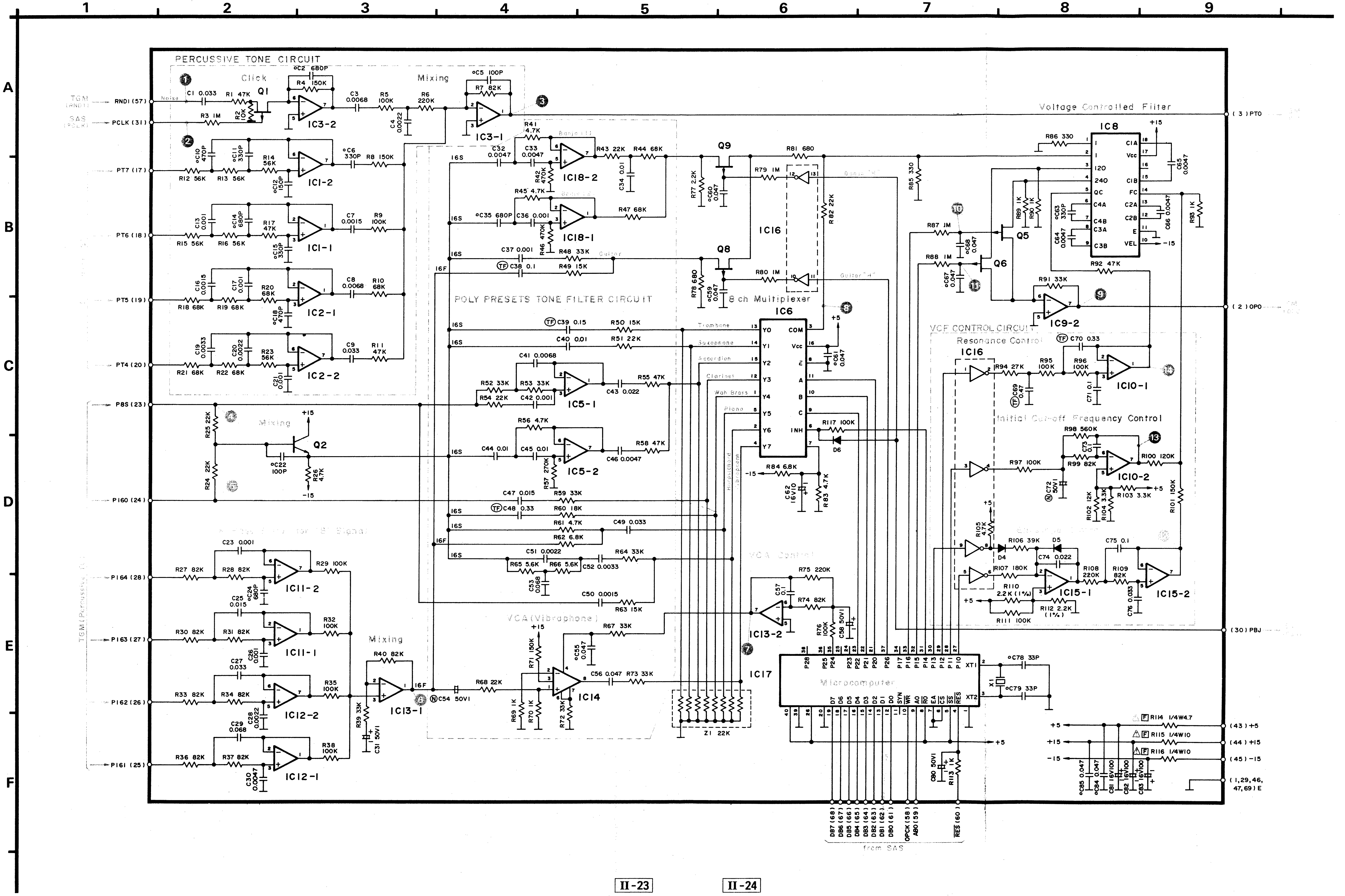
⓬ Wah Brass



- Upper Poly Presets...........Wah Brass
- Upper Key..........................ON

OP

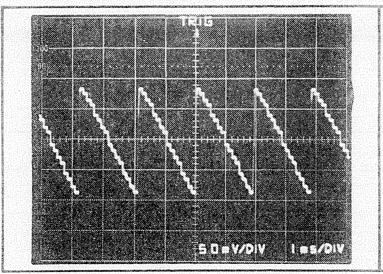
ORCHESTRAL & PERCUSSIVE PRESETS CIRCUIT DIAGRAM



1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
PERCUSSIVE TONE CIRCUIT
Click
Mixing
Noise
TGM (RND1)
SAS (PCLK)
RND1 (57)
PCLK (31)
PT7 (17)
PT6 (18)
PT5 (19)
PT4 (20)
P8S (23)
P160 (24)
P164 (28)
P163 (27)
P162 (26)
P161 (25)
Q1
Q2
Q5
Q6
Q8
Q9
IC3-2
IC3-1
IC1-2
IC1-1
IC2-1
IC2-2
IC18-2
IC18-1
IC5-1
IC5-2
IC11-2
IC11-1
IC12-2
IC12-1
IC13-1
IC13-2
IC14
IC16
IC6
IC8
IC9-2
IC10-1
IC10-2
IC15-1
IC15-2
IC17
Banjo
Guitar
Banjo "H"
Guitar "H"
POLY PRESETS TONE FILTER CIRCUIT
8 ch Multiplexer
Trombone
Saxophone
Accordion
Clarinet
Wah Brass
Piano
Harpsichord
Xylophone
Mixing
VCA (Vibraphone)
VCA Control
Voltage Controlled Filter
VCF CONTROL CIRCUIT
Resonance Control
Initial Cut-off Frequency Control
Microcomputer
Z1 22K
X1
16S
16F
(3) PTO
(2) OPO
(30) PBJ
(43) +5
(44) +15
(45) -15
(1, 29, 46, 47, 69) E
R114 1/4W4.7
R115 1/4W10
R116 1/4W10
DB7 (68)
DB6 (67)
DB5 (66)
DB4 (65)
DB3 (64)
DB2 (63)
DB1 (62)
DB0 (61)
OPCK (58)
A80 (59)
RES (60)
from SAS

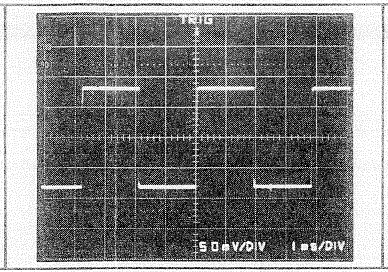
ACC ACCOMPANIMENT CIRCUIT BOARD

① Rhythmic



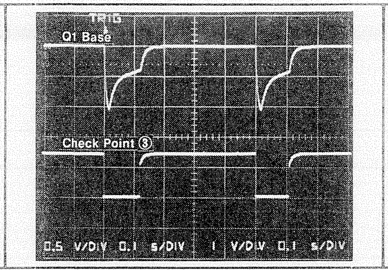
- Lower Key C3

② Rhythmic



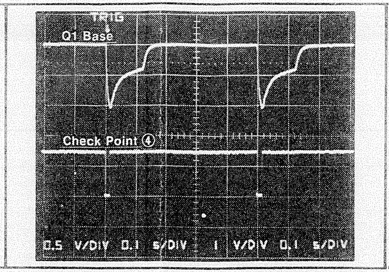
- Lower Key C3

③ Rhythmic



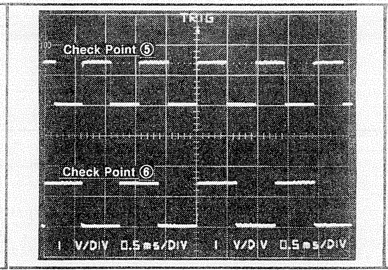
- Rhythm ....Bossanova I
- Rhythmic ....Pattern I
- Lower Key C3

④ Rhythmic



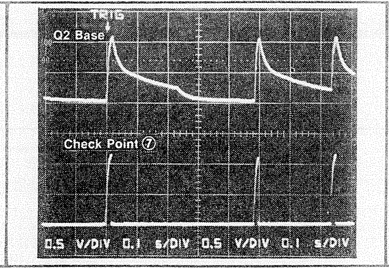
- Rhythm ....Bossanova I
- Rhythmic ....Pattern I
- Lower Key C3

⑤, ⑥ Melodic



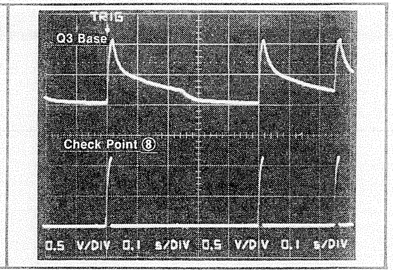
- Rhythm ....Bossanova I
- Melodic ....Pattern I
- Lower Key C3

⑦ Melodic



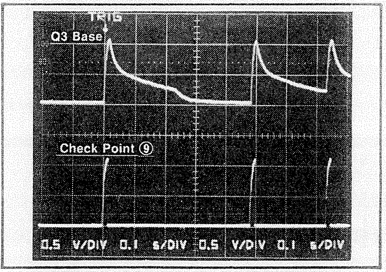
- Rhythm ....Bossanova I
- Melodic ....Pattern I
- Lower Key C3

⑧ Melodic



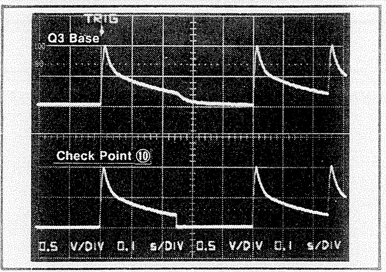
- Rhythm ....Bossanova I
- Melodic ....Pattern I
- Lower Key C3

⑨ Melodic



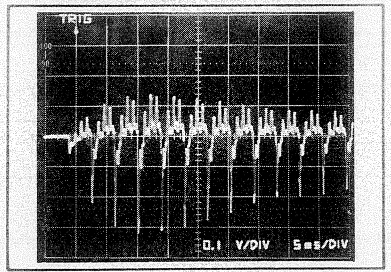
- Rhythm ....Bossanova I
- Melodic ....Pattern I
- Lower Key C3

⑩ Melodic

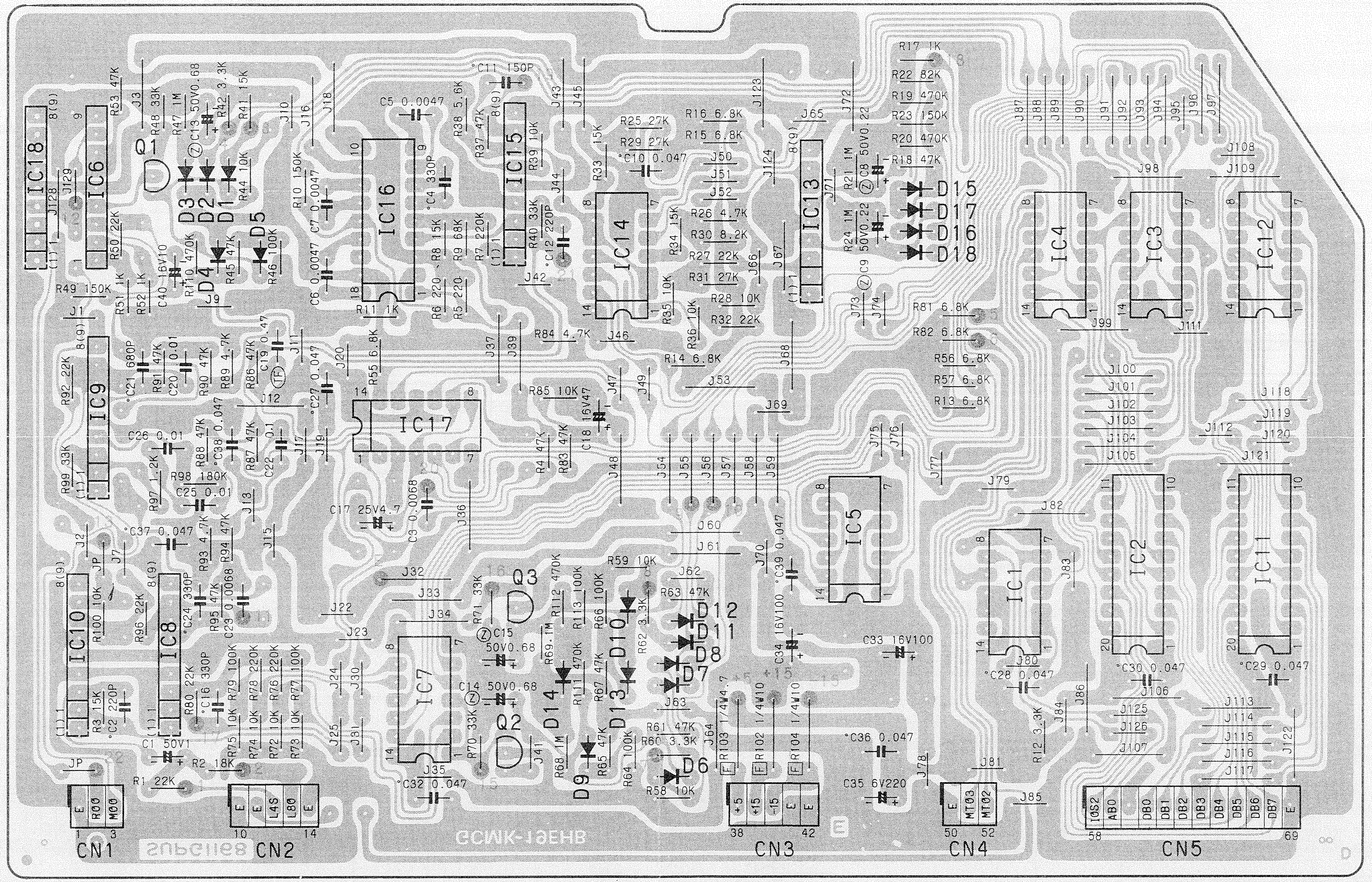


- Rhythm ....Bossanova I
- Melodic ....Pattern I
- Lower Key C3

⑪ Melodic

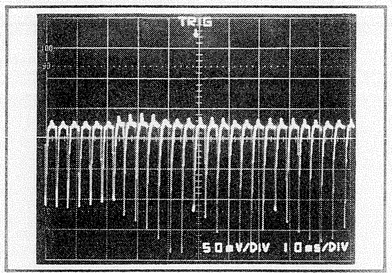


- Rhythm ....Disco I
- Melodic ....Pattern I
- Lower Key C3


IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
Q1
Q2
Q3
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
CN1
CN2
CN3
CN4
CN5
GCMK-196HB

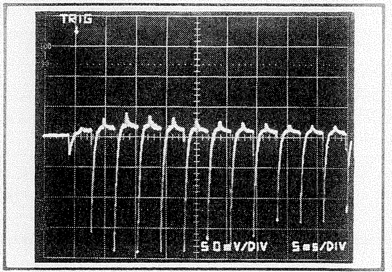
SXPG116851

㉑ Rhythmic



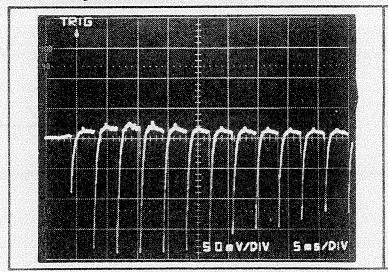
- Rhythm ....Bossanova I
- Rhythmic ....Pattern I
- Lower Key C3

㉒ Rhythmic



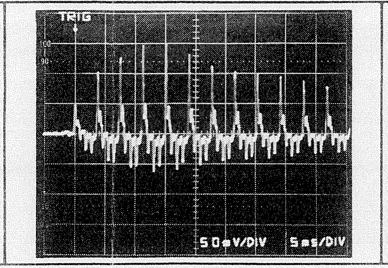
- Rhythm ....Bossanova I
- Rhythmic ....Pattern I
- Lower Key C3

⑫ Rhythmic



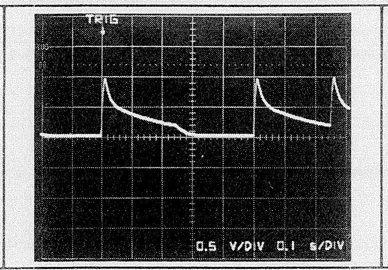
- Rhythm ....Bossanova I
- Rhythmic ....Pattern I
- Lower Key C3

⑬ Melodic



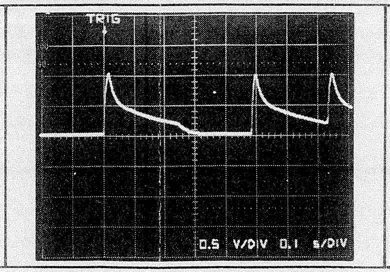
- Rhythm ....Disco I
- Melodic ....Pattern I
- Lower Key C3

⑮ Melodic



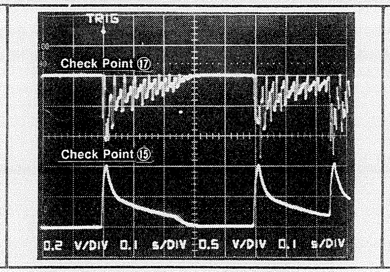
- Rhythm ....Bossanova I
- Melodic ....Pattern I
- Lower Key C3

⑯ Melodic



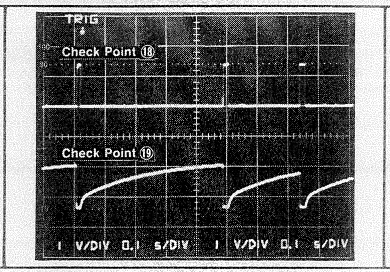
- Rhythm ....Bossanova I
- Melodic ....Pattern I
- Lower Key C3

⑰ Melodic



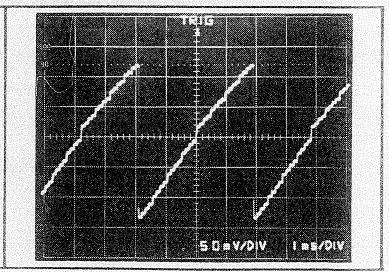
- Rhythm ....Bossanova I
- Melodic ....Pattern I
- Lower Key C3

⑱, ⑲ Rhythmic



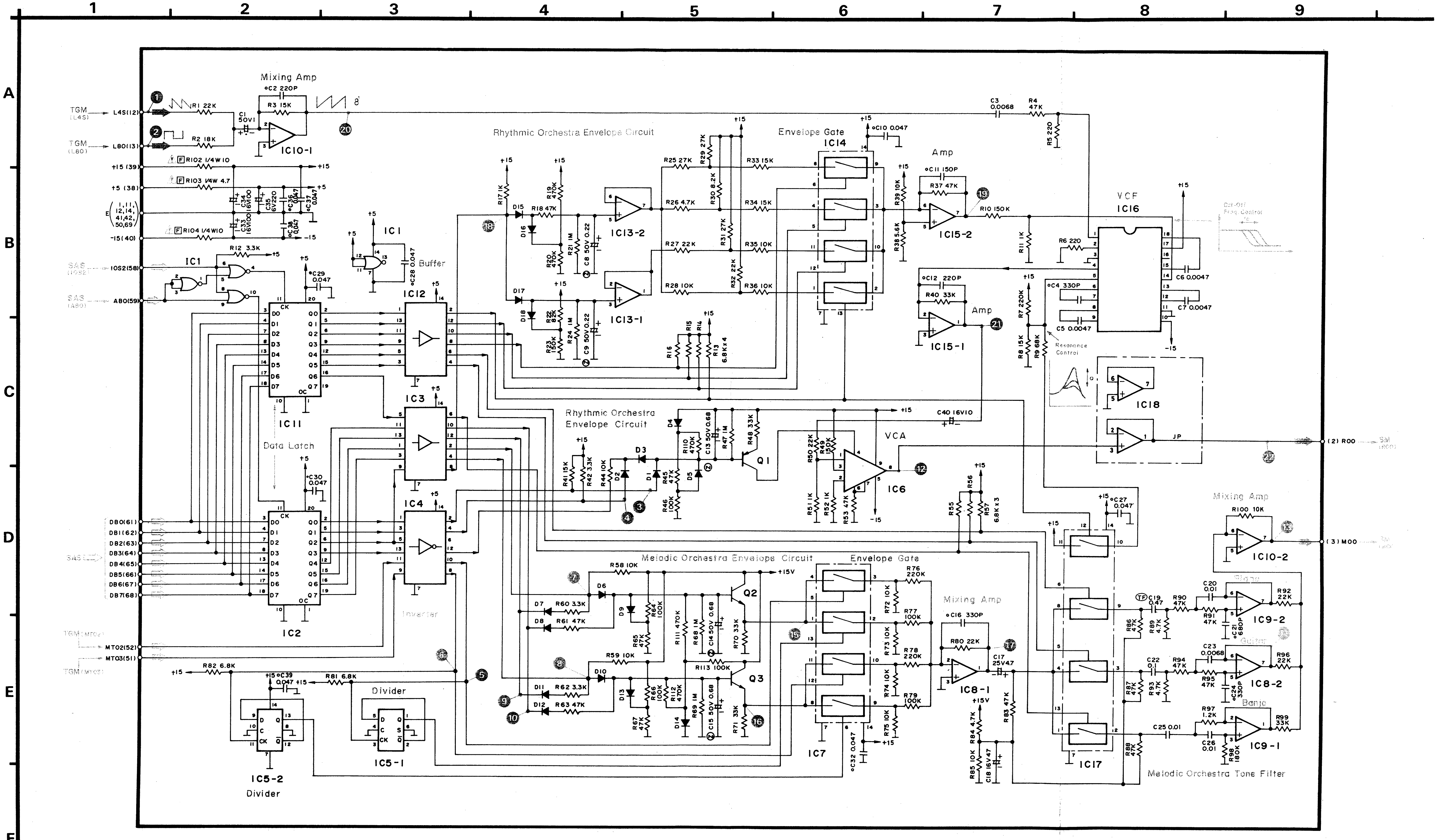
- Rhythm ....Bossanova I
- Rhythmic ....Pattern I
- Lower Key C3

⑳ Rhythmic



- Lower Key C3

ACCOMPANIMENT CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Mixing Amp
C2 220P
R3 15K
R1 22K
R2 18K
C1 50V1
IC10-1
TGM (L4S)
L4S(12)
TGM (L8O)
L8O(13)
+15 (39)
+5 (38)
-15(40)
E (1, 11, 12, 14, 41, 42, 50, 69)
R102 1/4W 10
R103 1/4W 4.7
R104 1/4W 10
SAS (10S2)
10S2(58)
SAS (A8O)
A8O(59)
R12 3.3K
IC1
C29 0.047
C28 0.047
Buffer
IC11
Data Latch
IC12
IC3
IC4
IC2
Inverter
DB0(61)
DB1(62)
DB2(63)
DB3(64)
DB4(65)
DB5(66)
DB6(67)
DB7(68)
TGM (MT02)
MT02(52)
MT03(51)
TGM (MT03)
R82 6.8K
R81 6.8K
C39 0.047
IC5-2
Divider
IC5-1
Rhythmic Orchestra Envelope Circuit
R17 1K
D15
R18 47K
R19 470K
D16
R20 470K
R21 1M
C8 50V 0.22
IC13-2
IC13-1
D17
D18
R22 82K
R23 150K
R24 1M
C9 50V 0.22
R25 27K
R26 4.7K
R27 22K
R28 10K
R29 27K
R30 8.2K
R31 27K
R32 22K
R33 15K
R34 15K
R35 10K
R36 10K
R13
R14
R15
R16
6.8K x 4
Envelope Gate
IC14
C10 0.047
R39 10K
R38 5.6K
Amp
C11 150P
R37 47K
IC15-2
R10 150K
C12 220P
R40 33K
IC15-1
C3 0.0068
R4 47K
R5 220
VCF
IC16
R6 220
R11 1K
R7 220K
C4 330P
C5 0.0047
C6 0.0047
C7 0.0047
R8 15K
R9 68K
Resonance Control
Cut-Off Freq. Control
IC18
JP
(2) R00
Rhythmic Orchestra Envelope Circuit
C40 16V10
R41 15K
R42 3.3K
R44 10K
D2
D3
D1
R45 47K
D4
D5
R46 100K
R110 470K
C13 50V 0.68
R47 1M
R48 33K
Q1
VCA
IC6
R49 150K
R50 22K
R51 1K
R52 1K
R53 47K
R55
R56
R57
6.8K x 3
C27 0.047
Mixing Amp
R100 10K
IC10-2
(3) M00
Melodic Orchestra Envelope Circuit
R58 10K
D6
D7
R60 3.3K
D8
R61 47K
D9
R64 100K
R65 47K
R111 470K
R68 1M
C14 50V 0.68
R70 33K
Q2
R59 10K
D10
D11
R62 3.3K
D12
R63 47K
D13
R66 100K
R112 470K
R67 47K
R113 100K
R69 1M
C15 50V 0.68
R71 33K
D14
Q3
Envelope Gate
R76 220K
R72 10K
R77 100K
R73 10K
R78 220K
R74 10K
R79 100K
R75 10K
IC7
C32 0.047
Mixing Amp
C16 330P
R80 22K
C17 25V47
IC8-1
R84 4.7K
R85 10K
C18 16V47
R83 47K
IC17
C19 0.47
C20 0.01
R90 47K
R91 47K
R86 47K
R89 4.7K
C21 680P
R92 22K
IC9-2
C22 0.1
C23 0.0068
R94 47K
R95 47K
R87 47K
R93 4.7K
C24 330P
R96 22K
IC8-2
Guitar
C25 0.01
C26 0.01
R97 1.2K
R98 180K
R88 47K
R99 33K
IC9-1
Banjo
Melodic Orchestra Tone Filter

NOTES:

- IC'S

IC1:	SVIGTC40H002
IC2, 11:	SVIGTC40H374
IC3, 12:	SVIGM53217
IC4:	SVIGM53216
IC5:	SVIGTC4013BP
IC6:	SVIGBA6110
IC7, 14, 17:	SVIGUPD4066B
IC8~10, 13, 15, 18:	SVIGM5218L
IC16:	SVIGBA6704

- TRANSISTORS

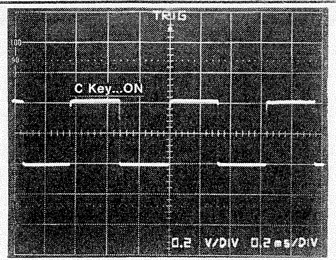
Q1:	2SA933STRS
Q2, 3:	2SC2320LFG

- DIODES

D1~18:	MA165TA5

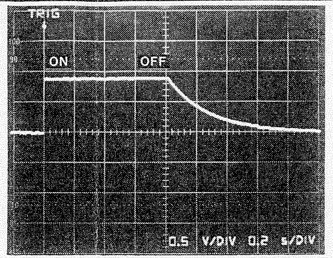
BD BASS & DRUM PERCUSSION CIRCUIT BOARD

① Bass Clock



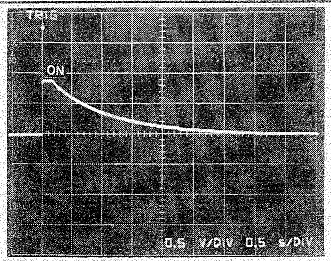
- C Key (1.57 KHz)~B Key (2.96 KHz)

② Envelope Control



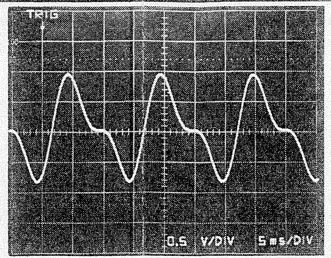
- Bass 8′ • Bass 16′ • Bass 16′ +8′
- Bass sustain ....step 3
- Bass Key ....ON-OFF

② Envelope Control



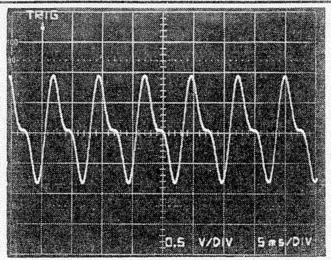
- Acoustic Bass
- Bass sustain ....step 3
- Bass Key ....ON

③ Bass 16′



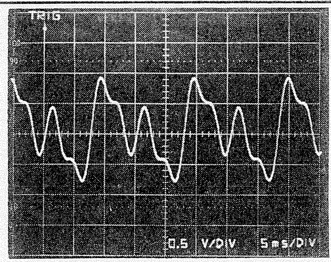
- Bass 16′
- Bass Key C2

③ Bass 8′



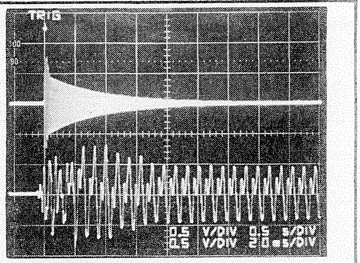
- Bass 8′
- Bass Key C2

③ Bass 16′ +8′

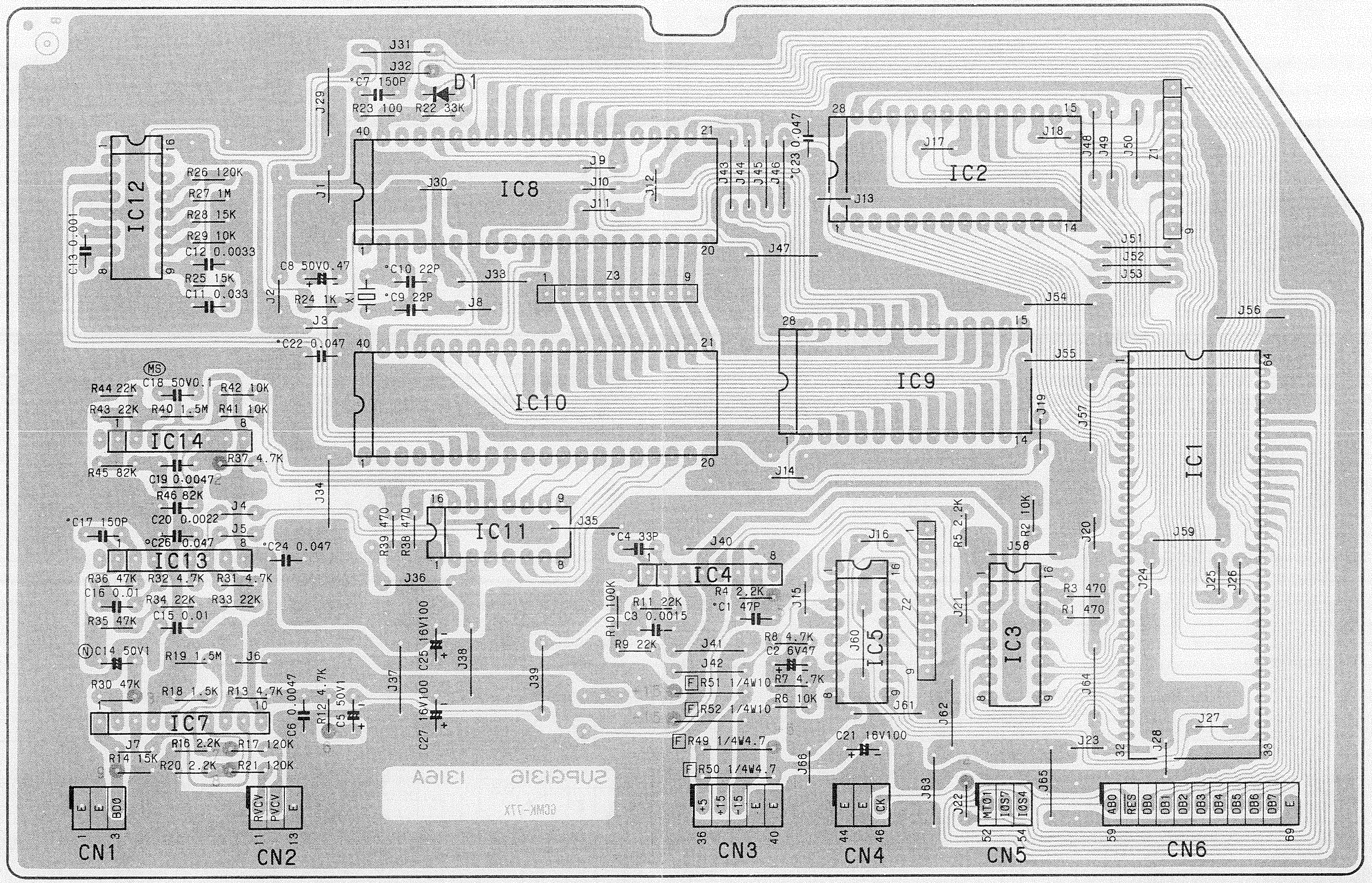


- Bass 16′ +8′
- Bass Key C2

④ Acoustic Bass



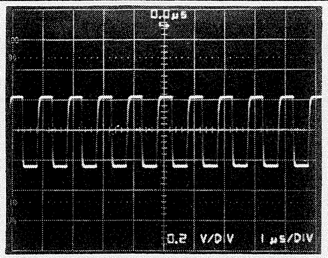
- Acoustic Bass
- Bass Sustain.......................step 3
- Bass Key C2



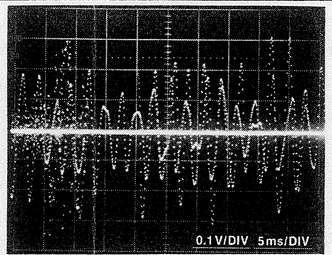
SXPG131611A

NOTES:
- IC'S
  - IC1: MN50015PGQ
  - IC2: MN231001PGW
  - IC3, 11: SVIGHA17008P
  - IC4, 14: SVIGM5238L
  - IC5: SVIGHD14051B
  - IC7: SVIGM5241L
  - IC8: SVIGM8049569
  - IC9: SVIG2364096
  - IC10: SVIG65002019
  - IC12: SVIGHD14046B
  - IC13: SVIGM5218L
- DIODES
  - D1: MA165TA5

④ Clock (1 MHz)

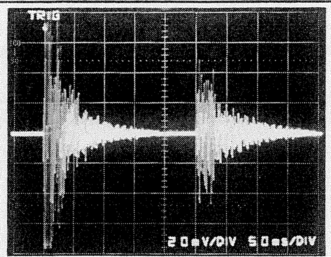


⑤



- Rhythm ....Rumba
- Tempo ....♩=120

⑥



- Rhythm ....Mambo
- Tempo ....♩=120

PVCV Terminal

Bass Volume	Bass 8′ Bass 16′ +8′ Acoustic	Bass 16′
Step 1	−6.0V	−5.4V
Step 2	−5.2V	−4.6V
Step 3	−4.4V	−3.8V
Step 4	−3.7V	−3.1V

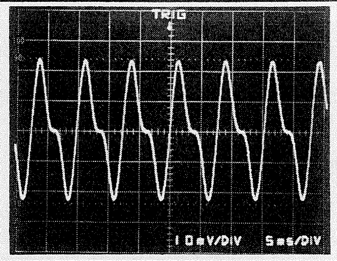
- Expression ....Max.
- Main Volume.......................step 1 (min)

RVCV Terminal

• Rhythm Volume Control	
Step 1	−6.6V
Step 2	−5.8V
Step 3	−4.4V
Step 4	−3.4V

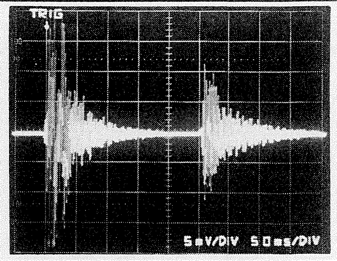
- Expression ....Max.
- Main Volume.......................step 1 (min)

⑨ Bass 8′



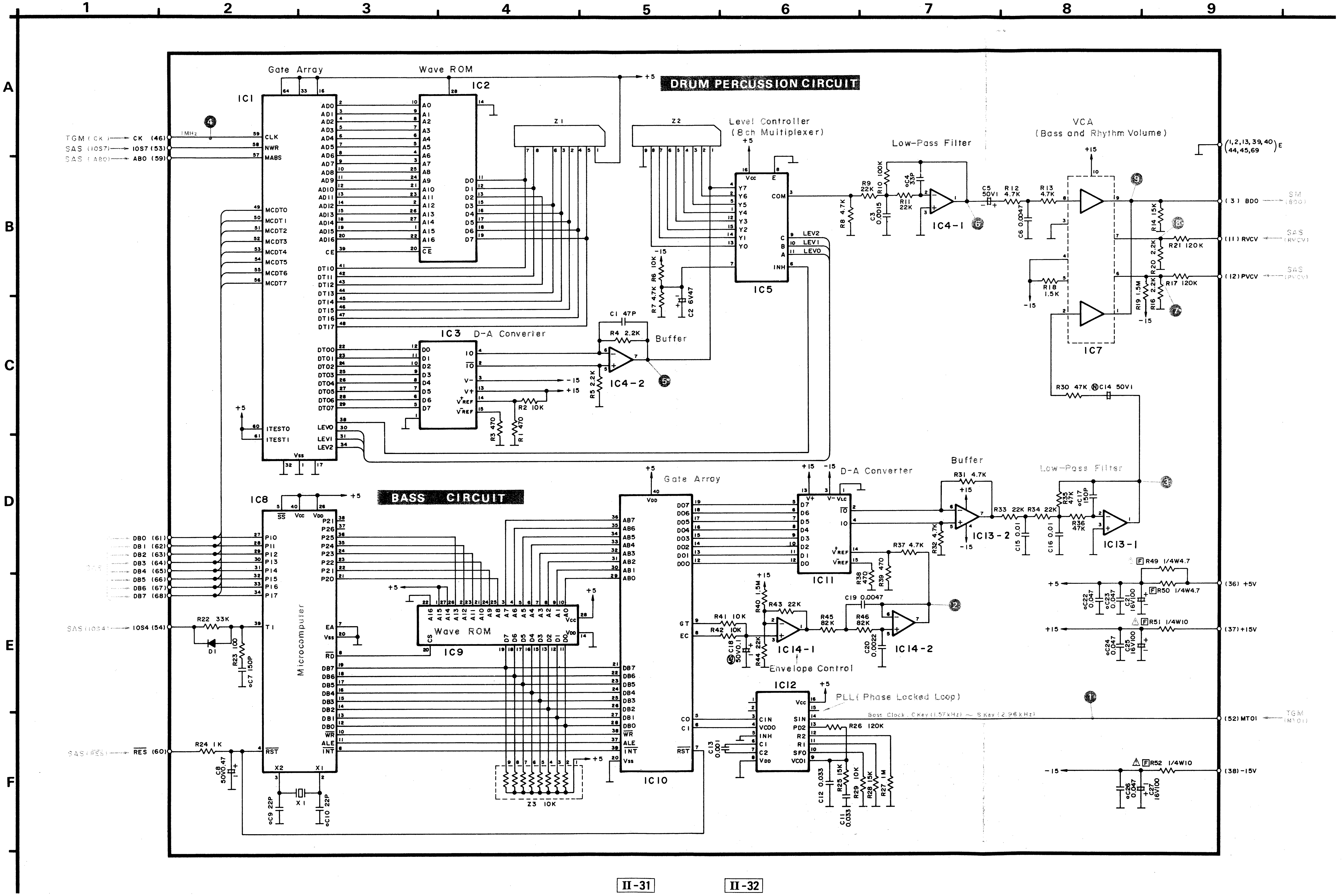
- EXP, Main Volume ....Max.
- Bass Volume.......................Max.
- Bass 8′ • Bass Key...C2

⑨ Rhythm



- Rhythm ....Mambo
- EXP, Main Volume ....Max.
- Rhythm Volume..................Max.

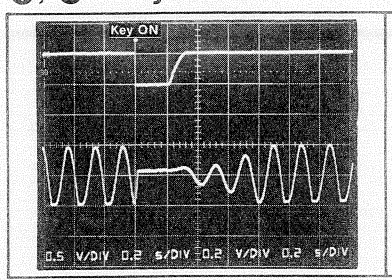
BD BASS & DRUM PERCUSSION CIRCUIT DIAGRAM


DRUM PERCUSSION CIRCUIT
BASS CIRCUIT
Gate Array
IC1
Wave ROM
IC2
Z1
Z2
Level Controller
(8ch Multiplexer)
IC5
Low-Pass Filter
IC4-1
VCA
(Bass and Rhythm Volume)
IC7
IC3 D-A Converter
Buffer
IC4-2
IC8
Microcomputer
IC9
IC10
Z3 10K
IC11
D-A Converter
IC13-1
IC13-2
IC14-1
IC14-2
Envelope Control
IC12
PLL (Phase Locked Loop)
Bass Clock CKey (1.57kHz) ~ BKey (2.96kHz)
TGM (CK) CK (46)
SAS (IOS7) IOS7 (53)
SAS (AB0) AB0 (59)
1MHz
DB0 (61)
DB1 (62)
DB2 (63)
DB3 (64)
DB4 (65)
DB5 (66)
DB6 (67)
DB7 (68)
SAS (IOS4) IOS4 (54)
SAS (RES) RES (60)
(1,2,13,39,40, 44,45,69) E
(3) BDO SM (BDO)
(11) RVCV SAS (RVCV)
(12) PVCV SAS (PVCV)
(36) +5V
(37) +15V
(38) -15V
(52) MTOI TGM (MTOI)
R49 1/4W4.7
R50 1/4W4.7
R51 1/4W10
R52 1/4W10
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F

SPS

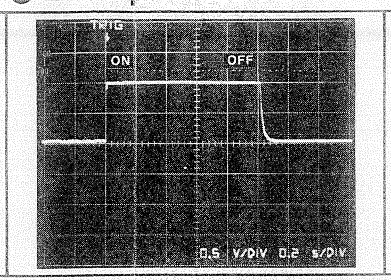
SOLO PRESETS CIRCUIT BOARD

①, ② Delay Vibrato



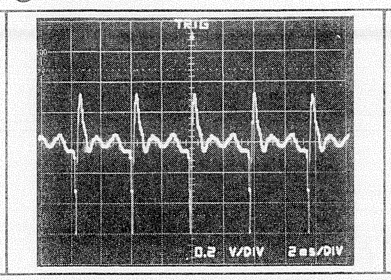
- Solo Presets........................Trombone
- Upper Key............................ON

③ Envelope Control



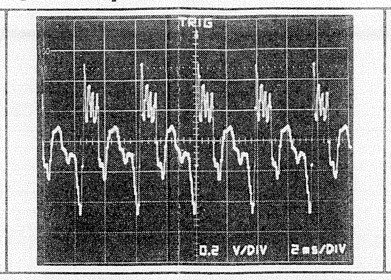
- Solo Presets........................Trombone
- Upper Key............................ON-OFF

④ Trombone



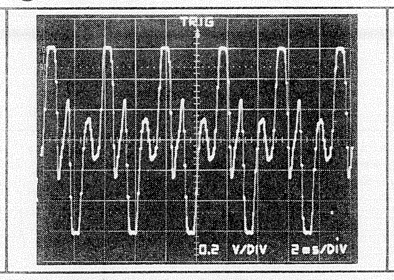
- Solo Presets........................Trombone
- Upper Key............................C4

④ Saxophone



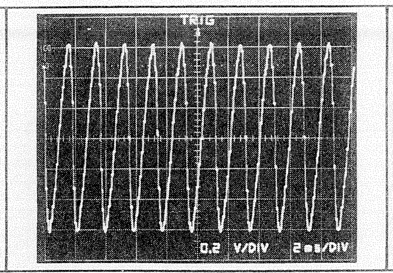
- Solo Presets........................Saxophone
- Upper Key............................C4

④ Clarinet



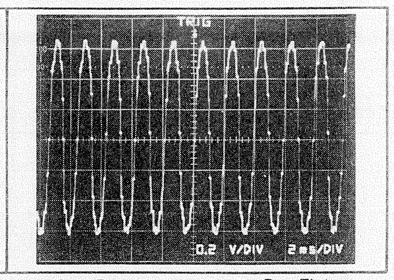
- Solo Presets........................Clarinet
- Upper Key............................C4

④ Flute

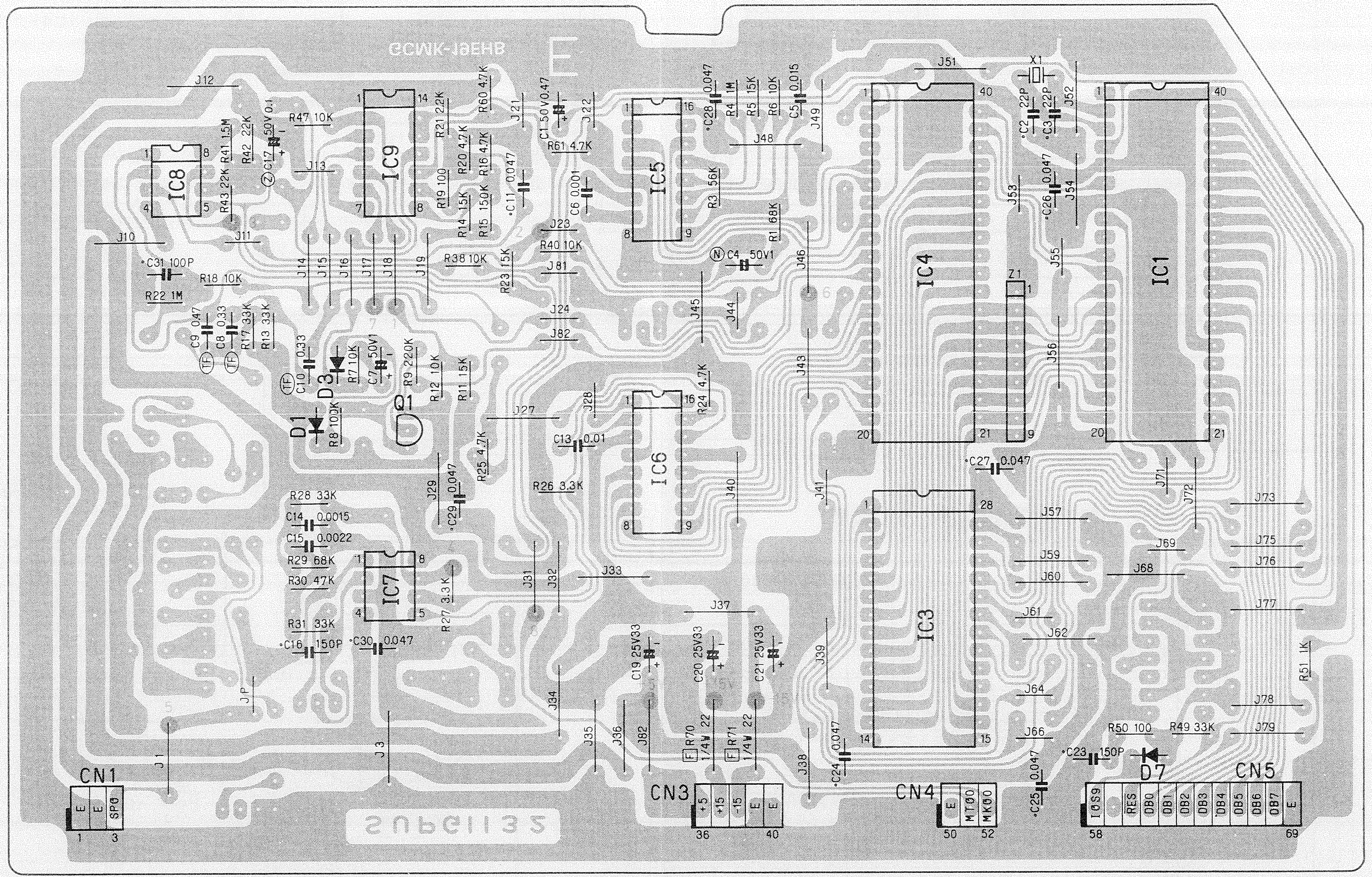


- Solo Presets........................Flute
- Upper Key............................C4

④ Pan Flute



- Solo Presets........................Pan Flute
- Upper Key............................C4

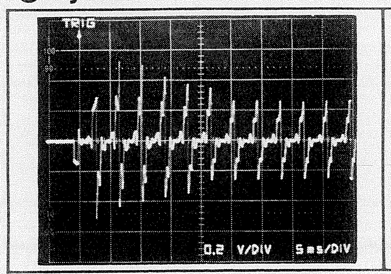

IC1
IC3
IC4
IC5
IC6
IC7
IC8
IC9
Q1
D1
D3
D7
X1
Z1
CN1
E E SP0
CN3
+5 +15 +15 E E
CN4
E MT00 MK00
CN5
IOS9 RES DB0 DB1 DB2 DB3 DB4 DB5 DB6 DB7 E
SUPG113Z

NOTES:

• IC'S	
IC1:	SVIGM8049569
IC3:	SVIG02EX50-C
IC4:	SVIG65002019
IC5:	SVIGHD14046B
IC6:	SVIGUPC624C
IC7:	AN6552F
IC8:	SVIGNJM082D
IC9:	SVIGUPD4066B
• TRANSISTOR	
Q1:	2SC2320LFG
• DIODES	
D1, 3, 7:	MA165TA5

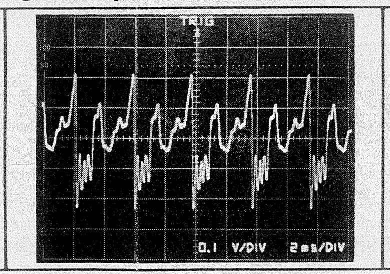
SXPG113291

④ Synthe



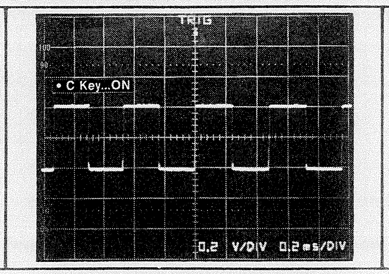
- Solo Presets........................Synthe
- Upper Key............................C4

⑤ Saxophone



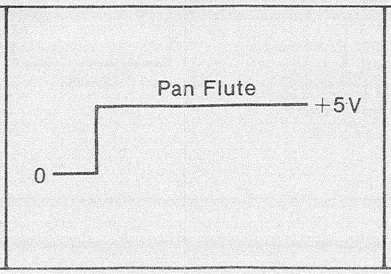
- Solo Presets........................Saxophone
- Upper Key............................C4

⑥ Clock



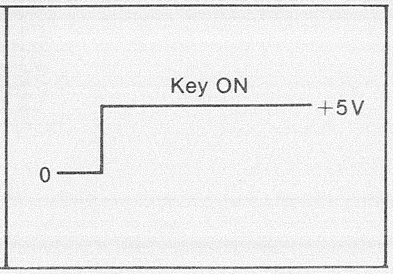
- C Key (2.1KHz)~B Key (3.97KHz)

⑦



- Solo Presets........................Pan Flute

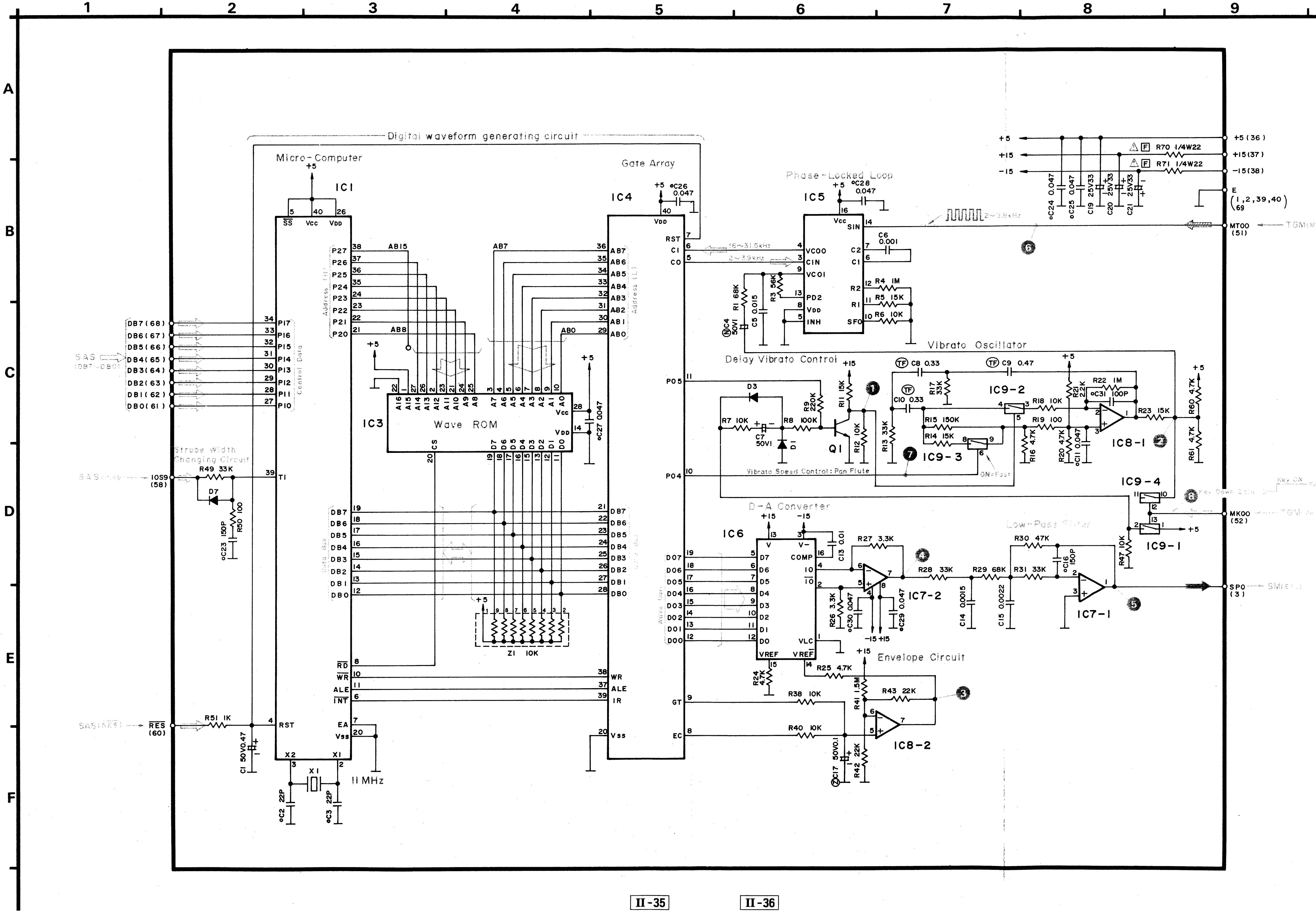
⑧



- Solo Presets........................ON
- Upper Key............................ON

SPS

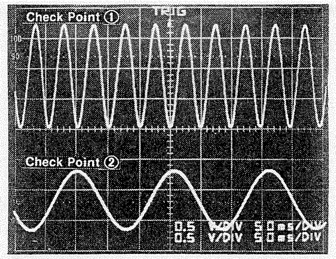
SOLO PRESETS CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Digital waveform generating circuit
Micro-Computer
IC1
Gate Array
IC4
Phase-Locked Loop
IC5
IC3
Wave ROM
Vibrato Oscillator
Delay Vibrato Control
Vibrato Speed Control: Pan Flute
ON=Fast
D-A Converter
IC6
Low-Pass Filter
Envelope Circuit
Strobe Width Changing Circuit
Address (H)
Address (L)
Control Data
Data Bus
Wave Data
SAS (DB7~DB0)
DB7(68)
DB6(67)
DB5(66)
DB4(65)
DB3(64)
DB2(63)
DB1(62)
DB0(61)
IOS9 (58)
RES (60)
R49 33K
D7
R50 100
C23 150P
R51 1K
C1 50V0.47
X1
11MHz
C2 22P
C3 22P
Z1 10K
C26 0.047
C27 0.047
C28 0.047
C6 0.001
R1 68K
C4 50V1
C5 0.015
R3 56K
R4 1M
R5 15K
R6 10K
16~31.5kHz
2~3.9kHz
+5 (36)
+15 (37)
−15 (38)
R70 1/4W22
R71 1/4W22
C24 0.047
C25 0.047
C19 25V33
C20 25V33
C21 25V33
E (1,2,39,40, 69)
MT00 (51)
TGM
MK00 (52)
SP0 (3)
Key ON
Key Down Detection
R9 220K
R11 15K
R7 10K
C7 50V1
R8 100K
D1
D3
Q1
R12 10K
R13 33K
C8 0.33
C9 0.47
C10 0.33
R17 33K
IC9-2
IC9-3
IC9-4
IC9-1
IC8-1
IC8-2
IC7-1
IC7-2
R15 150K
R14 15K
R18 10K
R19 100
R16 4.7K
R20 4.7K
C11 0.047
R21 2.2K
R22 1M
C31 100P
R23 15K
R60 4.7K
R61 4.7K
R47 10K
C13 0.01
R27 3.3K
R26 3.3K
C30 0.047
C29 0.047
R28 33K
R29 68K
R30 47K
R31 33K
C16 150P
C14 0.0015
C15 0.0022
R24 4.7K
R25 4.7K
R38 10K
R40 10K
R41 1.5M
R43 22K
R42 22K
C17 50V0.1
2~3.9kHz

LCM TREMOLO & CELESTE MODULATION CIRCUIT BOARD

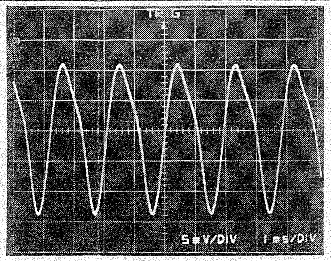
1 2 3 4 5 6 7 8 9

❶ LMF, ❷ LMS



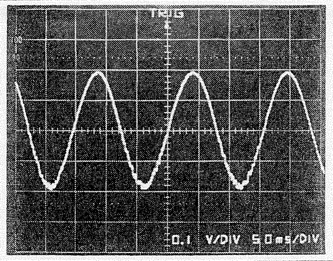
- Tremolo ....ON

❸



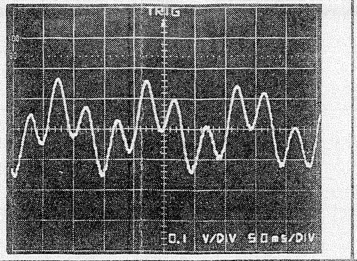
- Upper Tab Voices..............Flute 8′
- Upper Tab Volume ....Max.
- Tremolo...ON • Upper Key...C4

❹



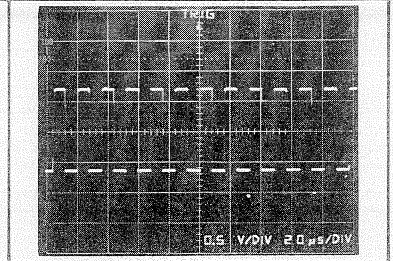
- Tremolo ....ON

❺



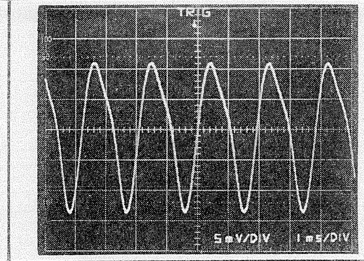
- Tremolo ....ON

❻, ❼



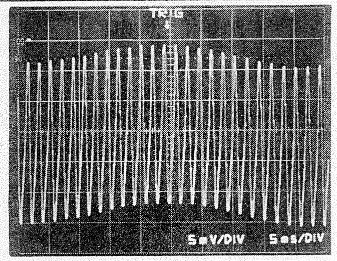
- Tremolo ....ON

❽, ❾



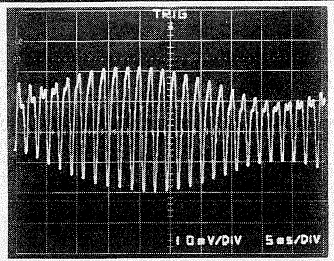
- Upper Tab Voices..............Flute 8'
- Upper Tab Volume ....Max.
- Tremolo...ON • Upper Key...C4

❿, ⓫



- Upper Tab Voices..............Flute 8'
- Upper Tab Volume ....Max.
- Tremolo...ON • Upper Key...C4

⓬

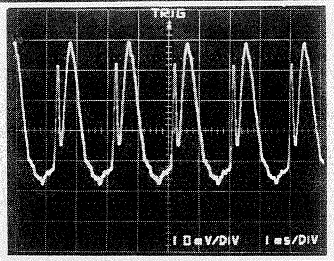


- Upper Tab Voices..............Flute 8'
- Upper Tab Volume ....Max.
- Tremolo ....ON
- Upper Key..........................C4

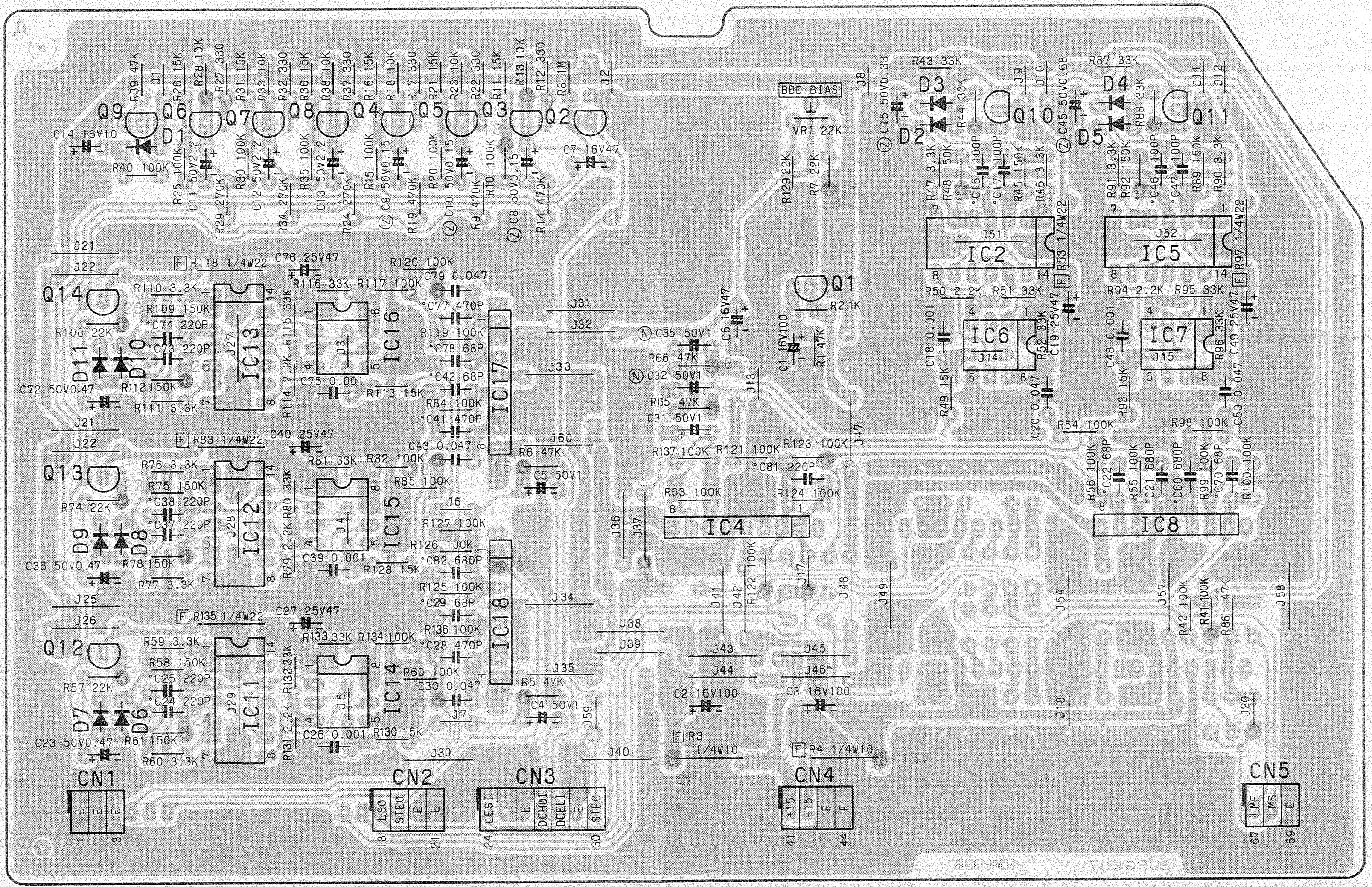
⓯

+14V

⓰, ⓱

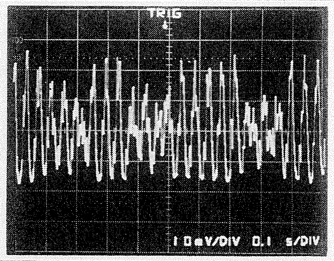


- U. String Ensemble ....ON
- Volume...............................Max.
- Upper Key...........................C4


A
BBD BIAS
VR1 22K
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
IC2
IC4
IC5
IC6
IC7
IC8
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
CN1
CN2
CN3
CN4
CN5
LSO
STEO
E
E
LES1
DCHO1
DCEL1
E
STEC
+15
-15
E
E
LMF
LMS
E
1
3
18
21
24
30
41
44
67
69
-15V
+15V
SUPG1317
GCMK-19EHB

NOTES:
- IC'S
  - IC2, 5, 11～13: SVIGMSM4011
  - IC4, 8, 17, 18: SVIGM5218L
  - IC6, 7, 14～16: MN3006
- TRANSISTORS
  - Q1, 3～14: 2SC2320LFG
  - Q2: 2SJ40CD
- DIODES
  - D1～11: MA165TA5

㉚

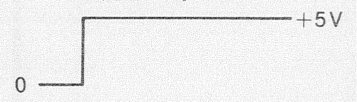


- U. String Ensemble ....ON
- Volume...............................Max.
- Upper Key...........................C4

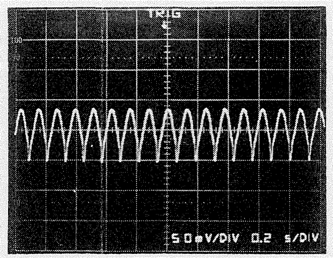
SXPG131711

STEC Terminal

- U. String Ensemble: ON
- Upper Key: ON

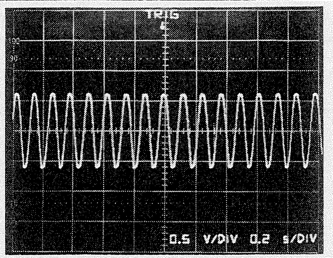


⓲



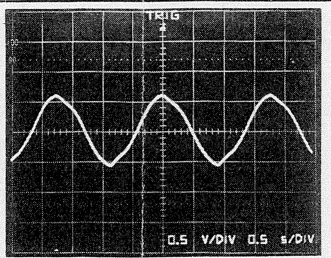
- U. String Ensemble ....ON
- Upper Key...........................ON

⓳ 8Hz

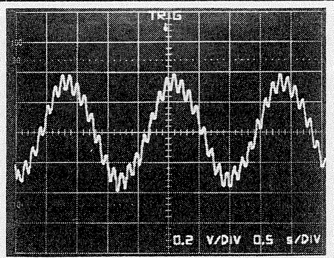


- U. String Ensemble ....ON
- Upper Key...........................ON

⓴ 0.6Hz

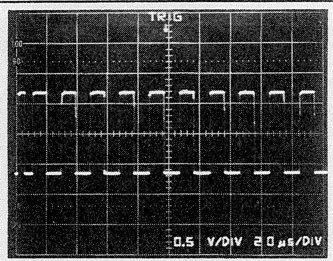


㉑, ㉒, ㉓



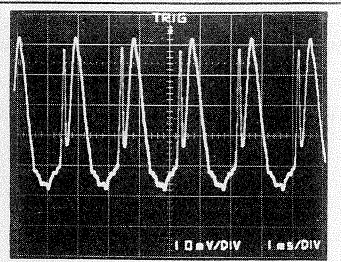
- U. String Ensemble ....ON
- Upper Key...........................ON

㉔, ㉕, ㉖



- U. String Ensemble ....ON
- Upper Key...........................ON

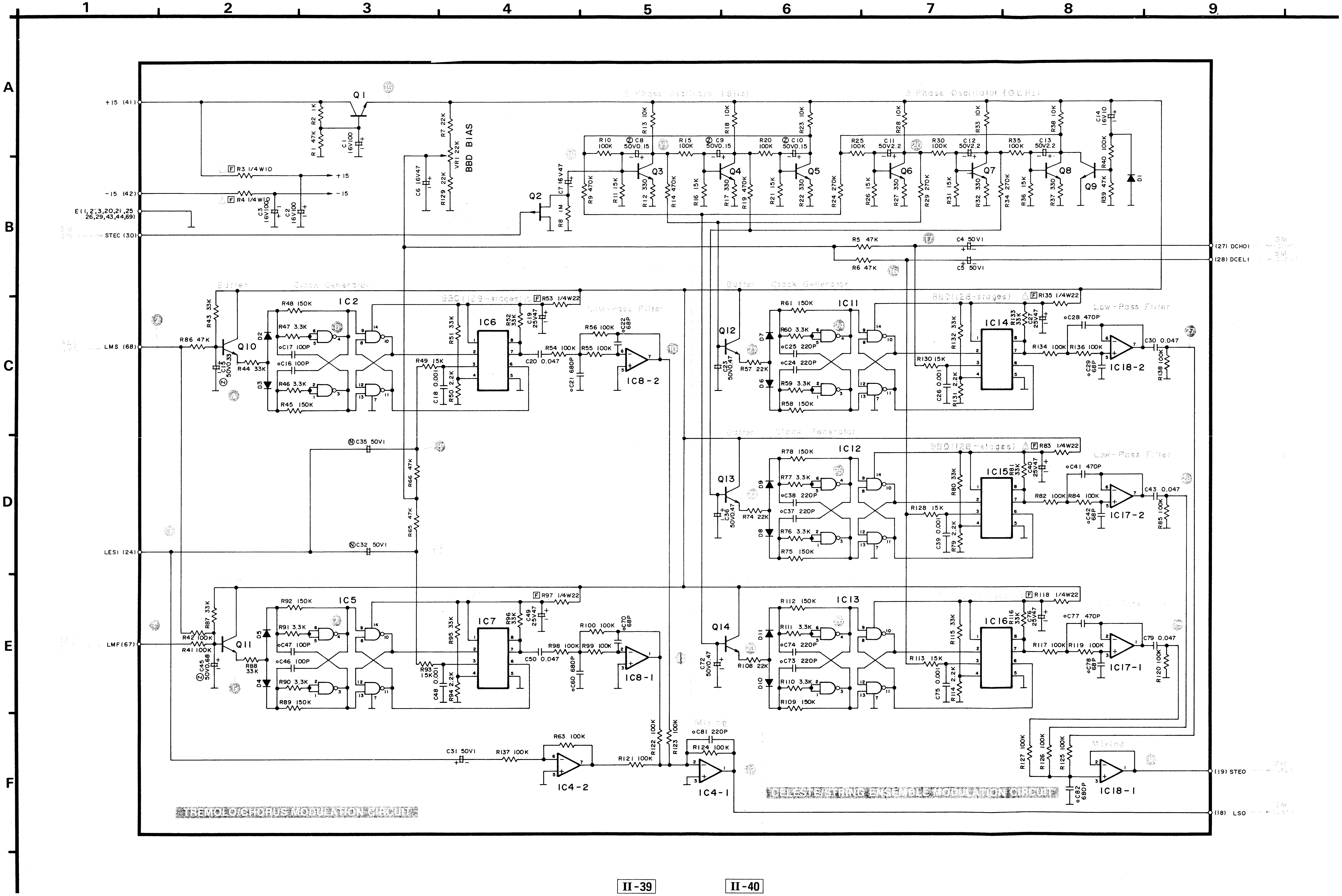
㉗, ㉘, ㉙



- U. String Ensemble ....ON
- Volume...............................Max.
- Upper Key...........................C4

LCM

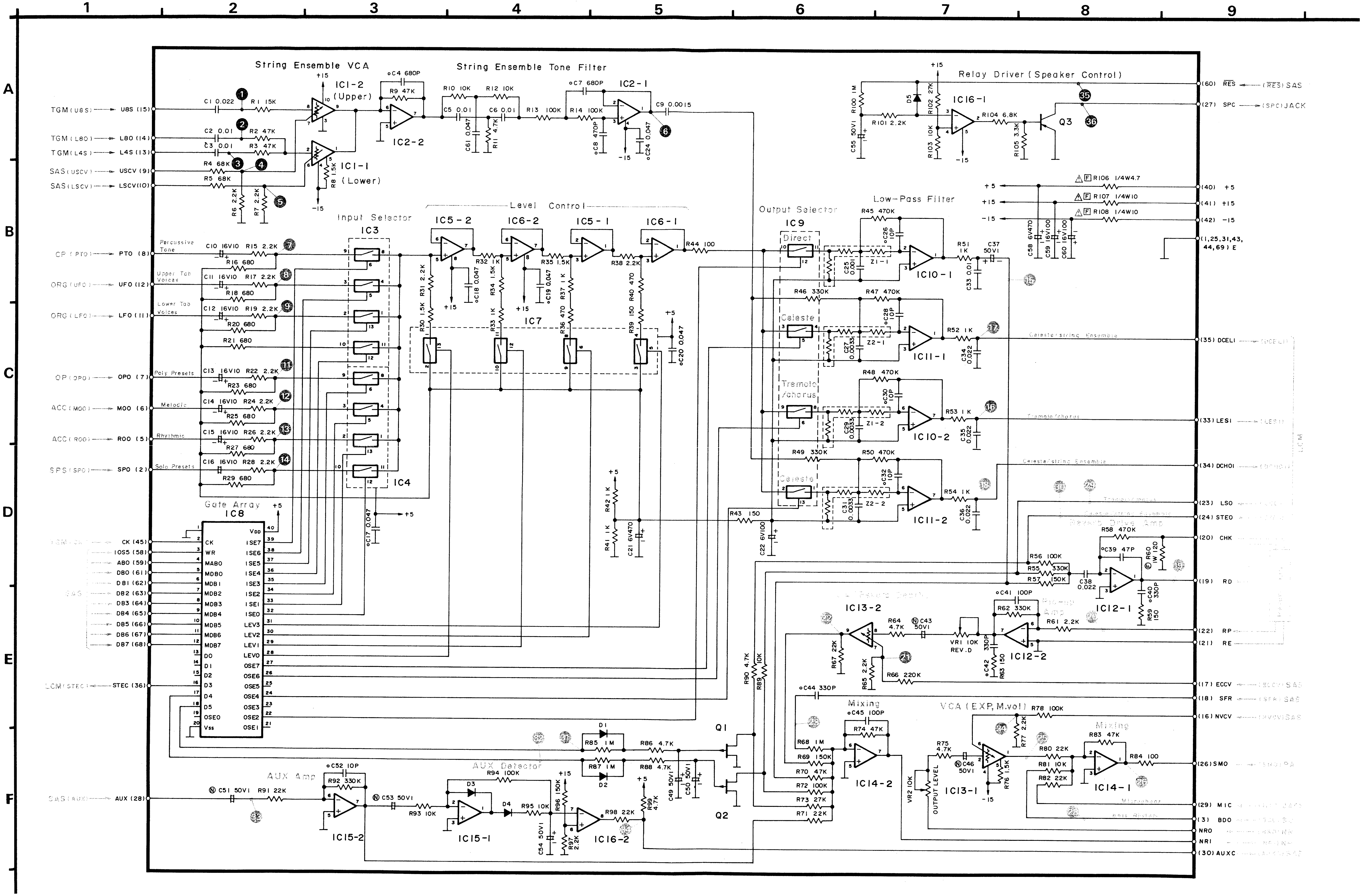
TREMOLO & CELESTE MODULATION CIRCUIT DIAGRAM



1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
+15 (41)
-15 (42)
E(1,2,3,20,21,25,26,29,43,44,69)
STEC (30)
LMS (68)
LESI (24)
LMF(67)
(27) DCHO1
(28) DCEL1
(19) STEO
(18) LSO
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
D1
BBD BIAS
VR1 22K
3 Phase Oscillator (6Hz)
3 Phase Oscillator (0.6Hz)
Buffer
Clock Generator
BBD(128-stages)
Low-Pass Filter
Mixing
IC2
IC5
IC6
IC7
IC8-1
IC8-2
IC4-1
IC4-2
IC11
IC12
IC13
IC14
IC15
IC16
IC17-1
IC17-2
IC18-1
IC18-2
F R3 1/4W10
F R4 1/4W10
F R53 1/4W22
F R97 1/4W22
F R135 1/4W22
F R83 1/4W22
F R118 1/4W22
N C35 50V1
N C32 50V1
TREMOLO/CHORUS MODULATION CIRCUIT
CELESTE/STRING ENSEMBLE MODULATION CIRCUIT

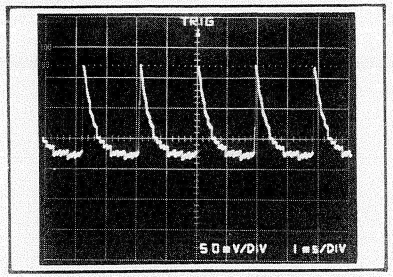
SM

SELECTOR & MIXING CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
String Ensemble VCA
IC1-2 (Upper)
IC1-1 (Lower)
String Ensemble Tone Filter
IC2-1
IC2-2
Relay Driver (Speaker Control)
IC16-1
Q3
TGM (U8S) → U8S (15)
TGM (L8O) → L8O (14)
TGM (L4S) → L4S (13)
SAS (USCV) → USCV (9)
SAS (LSCV) → LSCV (10)
(60) RES ← (RES) SAS
(27) SPC ← (SPC) JACK
Input Selector
IC3
IC4
Level Control
IC5-2
IC6-2
IC5-1
IC6-1
IC7
Output Selector
IC9
Direct
Celeste
Tremolo /chorus
Low-Pass Filter
IC10-1
IC11-1
IC10-2
IC11-2
CP (PTO) → PTO (8)
ORG (UFO) → UFO (12)
ORG (LFO) → LFO (11)
OP (OPO) → OPO (7)
ACC (MOO) → MOO (6)
ACC (ROO) → ROO (5)
SPS (SPO) → SPO (2)
Percussive Tone
Upper Tab Voices
Lower Tab Voices
Poly Presets
Melodic
Rhythmic
Solo Presets
Gate Array
IC8
CK (45)
IOS5 (58)
AB0 (59)
DB0 (61)
DB1 (62)
DB2 (63)
DB3 (64)
DB4 (65)
DB5 (66)
DB6 (67)
DB7 (68)
LCM (STEC) → STEC (36)
R106 1/4W4.7
R107 1/4W10
R108 1/4W10
(40) +5
(41) +15
(42) -15
(1,25,31,43, 44,69) E
(35) DCELI
(33) LESI
(34) DCHOI
(23) LSO
(24) STEO
(20) CHK
(19) RD
(22) RP
(21) RE
(17) ECCV
(18) SFR
(16) NVCV
(26) SMO
(29) MIC
(3) BDO
NRO
NRI
(30) AUXC
Reverb Drive Amp
IC12-1
IC13-2
Pickup Amp
IC12-2
VR1 10K REV.D
Mixing
IC14-2
VCA (EXP, M.vol)
IC13-1
VR2 10K OUTPUT LEVEL
IC14-1
Q1
Q2
SAS (AUX) → AUX (28)
AUX Amp
IC15-2
AUX Detector
IC15-1
IC16-2

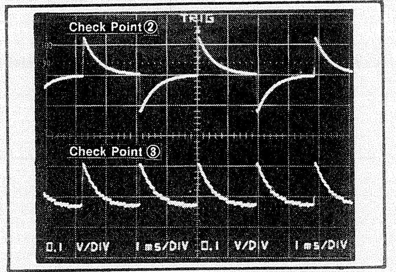
SM SELECTOR & MIXING CIRCUIT BOARD

❶



- U. String Ensemble............ON
- Upper Key............................C4

❷, ❸



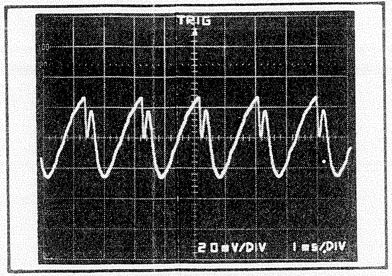
- L. String Ensemble ....ON
- Lower Key C3

USCV, LSCV Terminals

- U/L String Ensemble Volume Control
  - Step 1.................−1.9V
  - Step 2.................−1.5V
  - Step 3.................−0.9V
  - Step 4.................0V

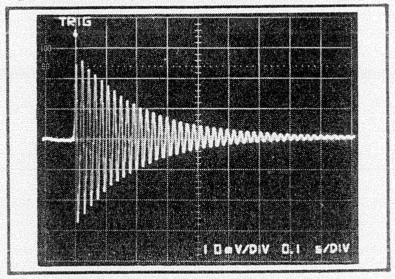
- U/L String Ensemble
- Volume...............................step 1~4

❻



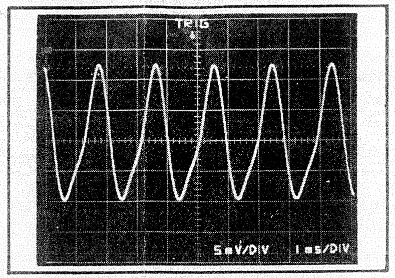
- U. String Ensemble............ON
- Volume...Max. • UKB...C4

❼ Percussive Tone



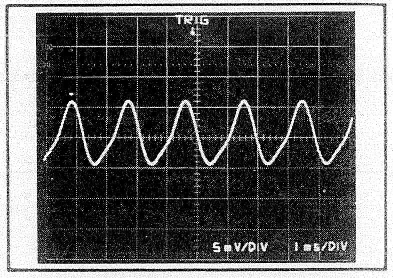
- Percussive Tone.................4′
- Upper Key............................C4

❽ Upper Tab Voices



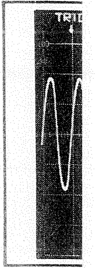
- Upper Tab Voices..............Flute 8′
- Upper Key............................C4

❾ Lower Tab Voices



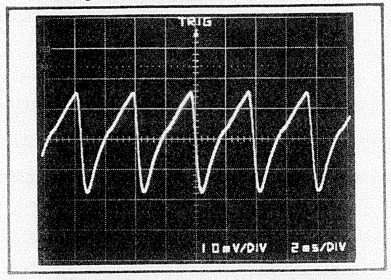
- Lower Tab Voices ....Flute 8′
- Lower Key C4

㉓ SF



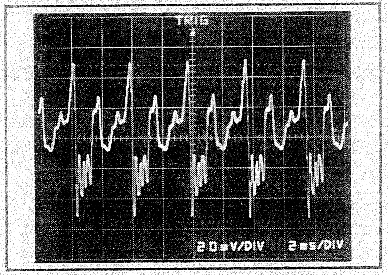
- Rec
- Rhy
- Low

⓫ Poly Presets



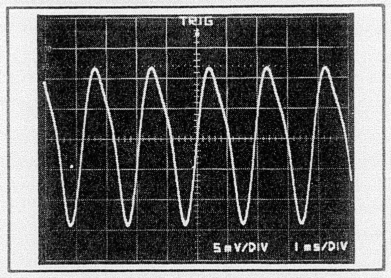
- Poly Presets.........................Trombone
- Upper Key.............................C4

⓮ Solo Presets

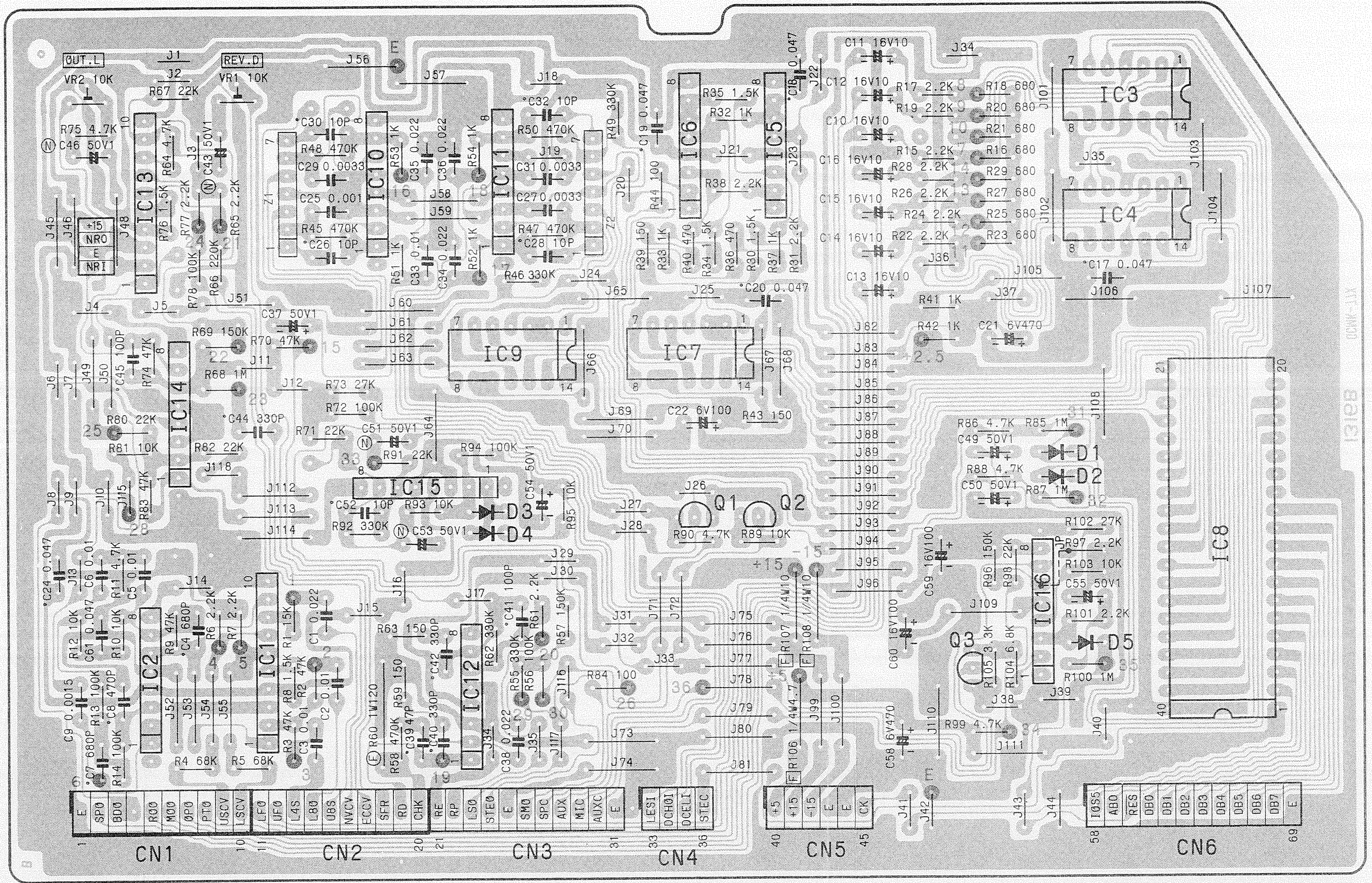


- U. Solo Presets..................Saxophone
- Upper Key............................C4

⓱, ⓲ Celeste

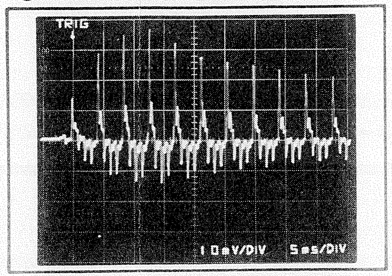


- U. Flute 8′ • UKB...C4 • Vol.....Max.


OUT.L
VR2 10K
REV.D
VR1 10K
E
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
Q1
Q2
Q3
D1
D2
D3
D4
D5
+15
NRO
E
NRI
CN1
CN2
CN3
CN4
CN5
CN6
SPD
BDO
RDO
MDO
OBO
PTO
USCV
LSCV
LFO
UFO
L4S
L8O
U8S
NVCV
ECCV
SFR
RD
CHK
RE
RP
LSO
STEO
SMO
SPC
AUX
MID
AUXC
E
LESI
OCHOI
OCELI
STEC
CK
DSS
ABO
RES
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
E

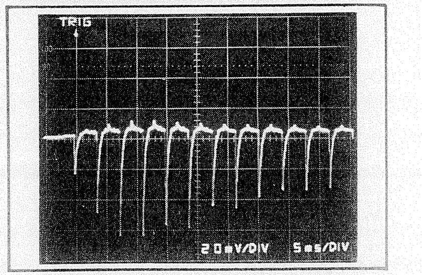
SXPG131611B

⓬ Melodic Orchestra



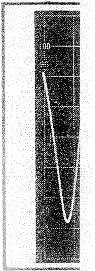
- Rhythm ....Disco Ⅰ
- Melodic...............................Pattern Ⅱ
- Lower Key C3

⓭ Rhythmic Orchestra



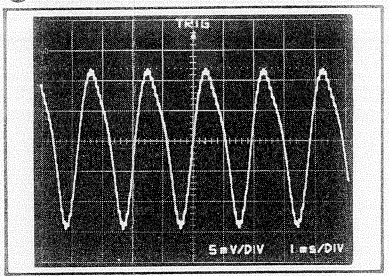
- Rhythm ....Bossanova Ⅰ
- Rhythmic ....Pattern Ⅰ
- Lower Key C3

㉕



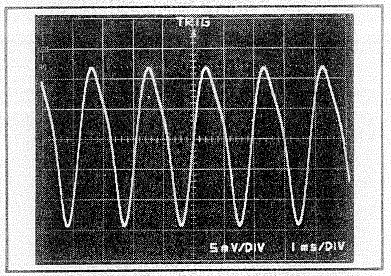
- Up
- EX
- Tab

⓯ Direct



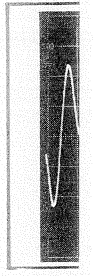
- Upper Tab Voices..............Flute 8′
- Volume...............................Max.
- Upper Key............................C4

⓰ Tremolo/chorus



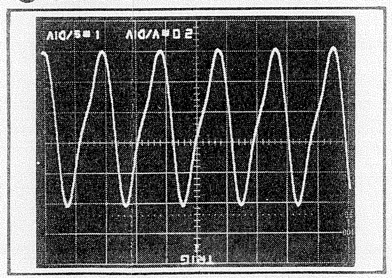
- Upper Tab Voices..............Flute 8′
- Volume...Max. • UKB...C4
- Tremolo or chorus.............ON

㉘ Ba



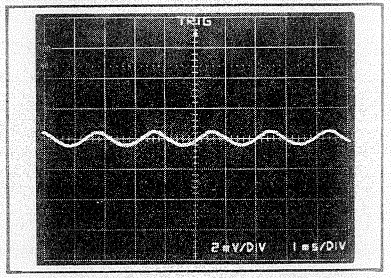
- Ba
- EX

⓳ Reverb



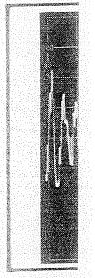
- Upper Tab Voices..............Flute 8′
- Volume...............................Max.
- Upper Key............................C4

⓴ Reverb



- Upper Tab Voices..............Flute 8′
- Volume...............................Max.
- Upper Key............................C4

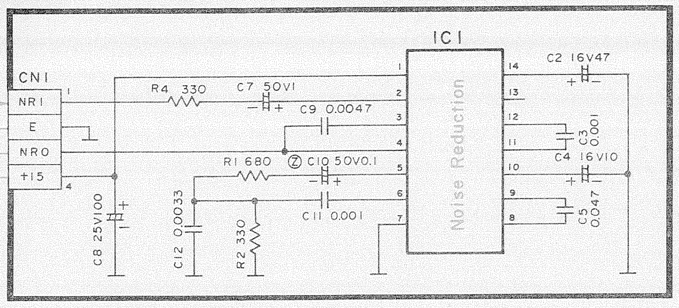
㉚

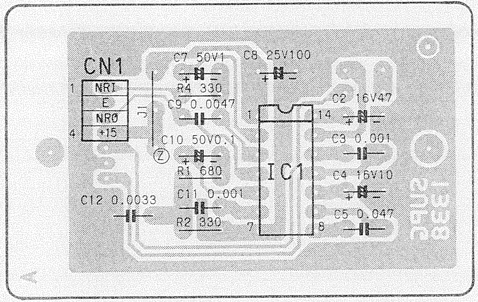


- U.
- Vo
- Up

NR NOISE REDUCTION CIRCUIT

SXPG133811


SM
CN1
NRI
E
NRO
+15
IC1
Noise Reduction
R4 330
C7 50V1
C9 0.0047
R1 680
C10 50V0.1
C11 0.001
C2 16V47
C3 0.001
C4 16V10
C5 0.047
C8 25V100
C12 0.0033
R2 330


CN1
NRI
E
NRO
+15
C7 50V1
C8 25V100
R4 330
C9 0.0047
C2 16V47
C10 50V0.1
C3 0.001
R1 680
IC1
C4 16V10
C11 0.001
C12 0.0033
C5 0.047
R2 330

NOTE • IC1: SVIGLM1894N

NOTES:

- IC'S

IC1, 13:	SVIGM5241L
IC2, 10, 11, 14,15:	SVIGM5218L
IC3, 4, 7, 9:	SVIGUPD4066B
IC5, 6:	SVIGM5238L
IC8:	SVIG65002018
IC12:	SVIGM5216LL
IC16:	AN6913

- TRANSISTORS

Q1, 2:	2SJ40CD
Q3:	2SA933STRS

- DIODES

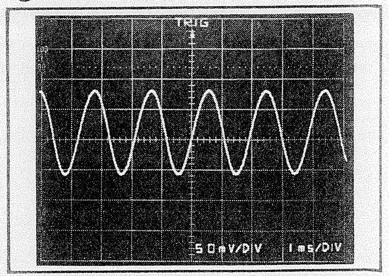
D1~5:	MA165TA5

ECCV Terminal

- Reverb Volume Control
  - Step 1.................−12V
  - Step 2.................−5.4V
  - Step 3.................−3.2V
  - Step 4.................0V

- Reverb Volume ....step 1~4

㉒



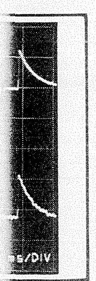
- Upper Tab Voices..............Flute 8′
- Volume...............................Max.
- Upper Key............................C4
- Reverb Volume ....Max.

㉞

+5

IRCUIT BOARD

3 4 5 6 7 8 9 10 11 12

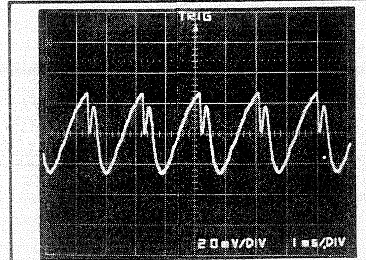


USCV, LSCV Terminals

- U/L String Ensemble Volume Control
  - Step 1..................−1.9V
  - Step 2..................−1.5V
  - Step 3..................−0.9V
  - Step 4..................0V

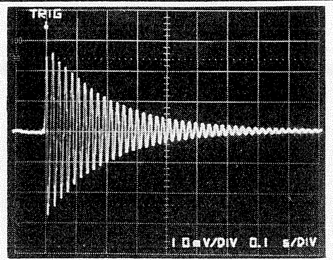
- U/L String Ensemble
- Volume...............................step 1∼4

⑥



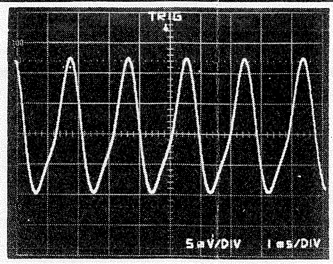
- U. String Ensemble ....ON
- Volume...Max. • UKB...C4

⑦ Percussive Tone



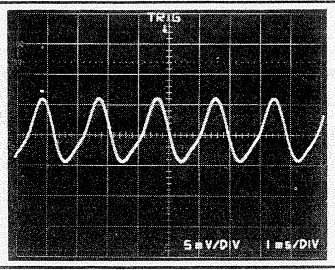
- Percussive Tone.................4′
- Upper Key............................C4

⑧ Upper Tab Voices



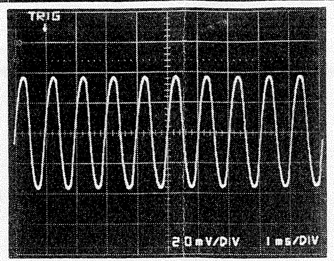
- Upper Tab Voices..............Flute 8′
- Upper Key...........................C4

⑨ Lower Tab Voices



- Lower Tab Voices ....Flute 8′
- Lower Key C4

㉓ SFR

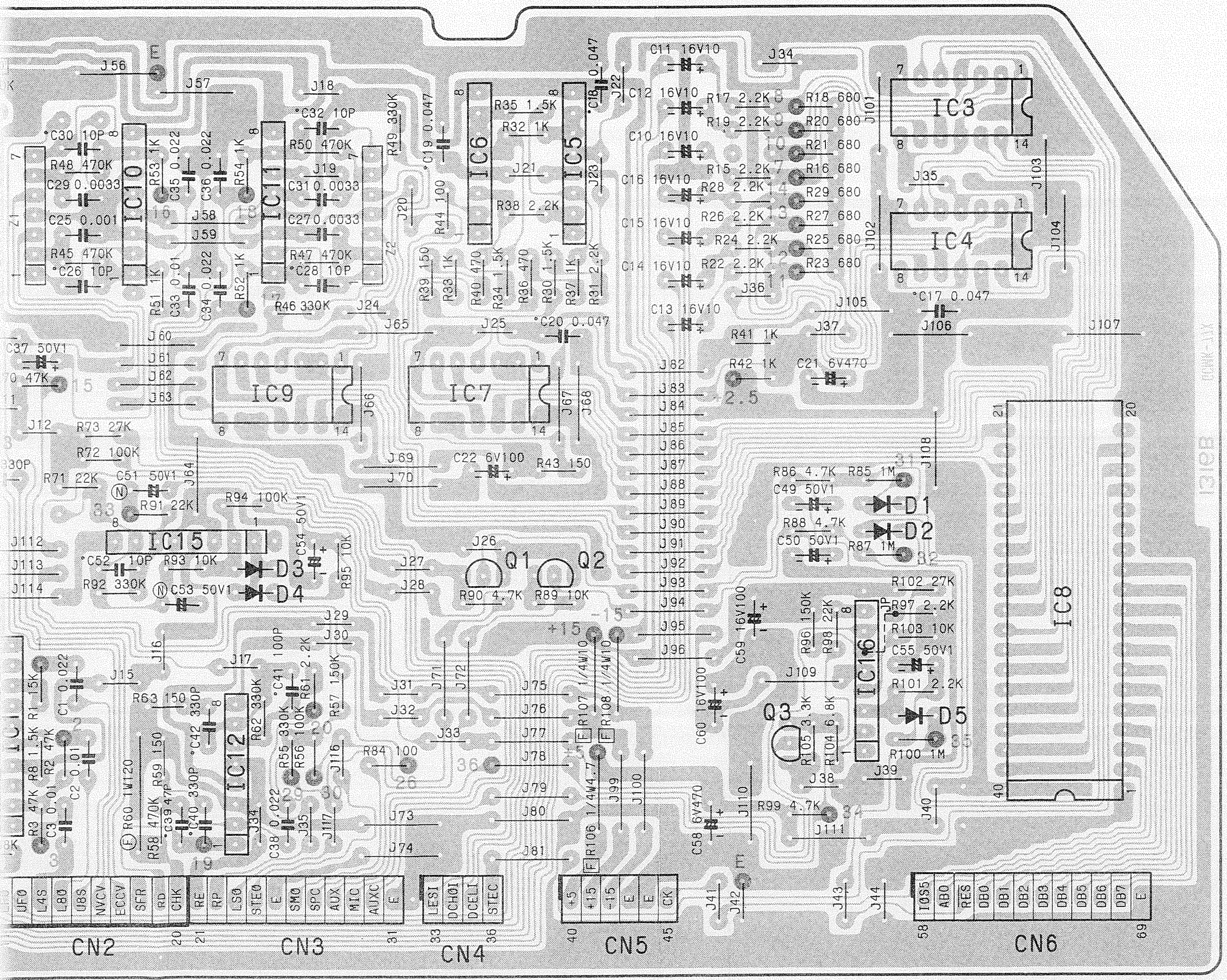


- Record ....ON
- Rhythm Sequencer.............ON
- Lower key C3

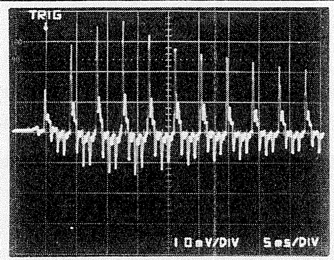
NVCV Terminal

- Main Volume Control
  - Step 1.................−4.0V
  - Step 2.................−2.8V
  - Step 3.................−1.5V
  - Step 4.................−0.2V

- EXP Pedal...........................Max.
- Main Volume.......................step 1∼4

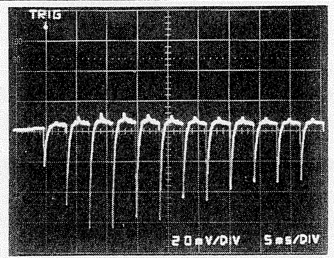


⑫ Melodic Orchestra



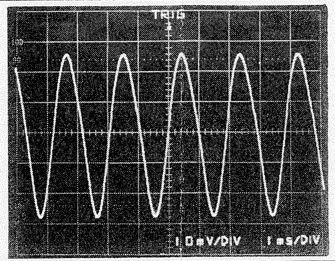
- Rhythm ....Disco I
- Melodic...............................Pattern II
- Lower Key C3

⑬ Rhythmic Orchestra



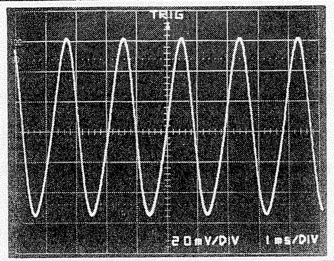
- Rhythm ....Bossanova I
- Rhythmic ....Pattern I
- Lower Key C3

㉕



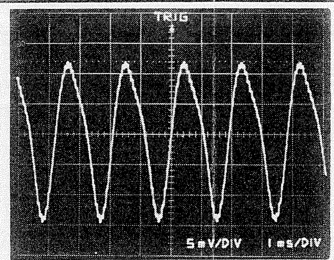
- Upper Tab Voices..............Flute 8′
- EXP, Main Vol.....................Max.
- Tab Vol...Max. • UKB...C4

㉖



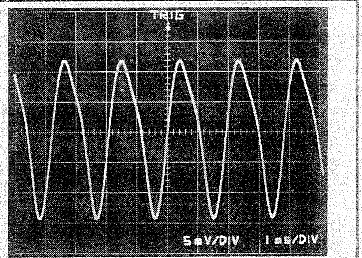
- Upper Tab Voices..............Flute 8′
- EXP, Main Vol.....................Max.
- Tab Vol...Max. • UKB...C4

⑮ Direct



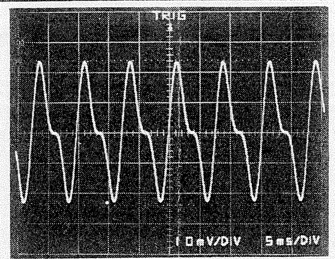
- Upper Tab Voices..............Flute 8′
- Volume................................Max.
- Upper Key...........................C4

⑯ Tremolo/chorus



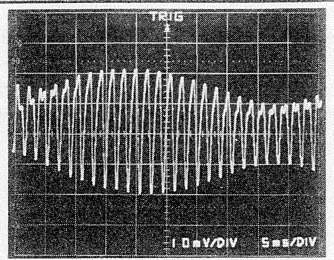
- Upper Tab Voices..............Flute 8′
- Volume...Max. • UKB...C4
- Tremolo or chorus.............ON

㉘ Bass



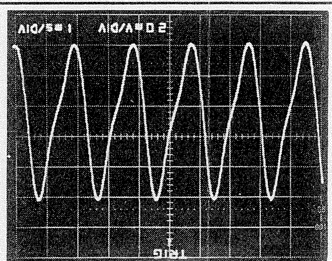
- Bass 8′ • Bass Key...C2
- EXP, Main Vol., Bass Vol.....Max.

㉙ Chorus



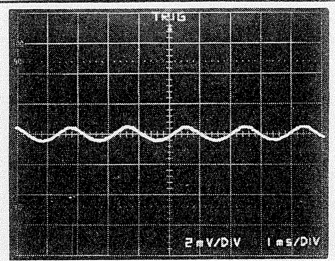
- Upper Tab Voices..............Flute 8′
- Volume................................Max.
- Chorus...ON • UKB...C4

⑲ Reverb



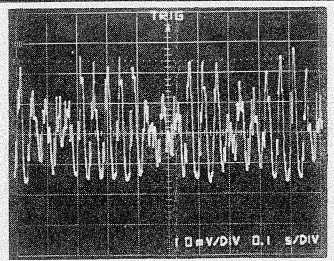
- Upper Tab Voices..............Flute 8′
- Volume................................Max.
- Upper Key...........................C4

⑳ Reverb



- Upper Tab Voices..............Flute 8′
- Volume................................Max.
- Upper Key...........................C4

㉚



- U. String Ensemble ....ON
- Volume................................Max.
- Upper Key...........................C4

㉛

- Celeste or String Ensemble............+5V

㉜

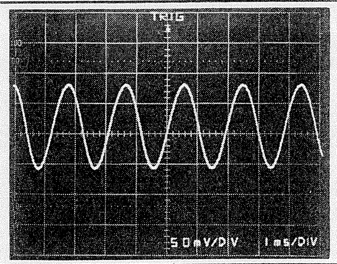
- Chorus or Tremolo: +5V

ECCV Terminal

- Reverb Volume Control
  - Step 1..................−12V
  - Step 2..................−5.4V
  - Step 3..................−3.2V
  - Step 4..................0V

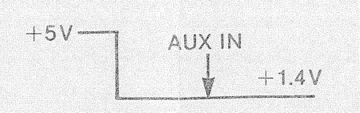
- Reverb Volume ....step 1∼4

㉒

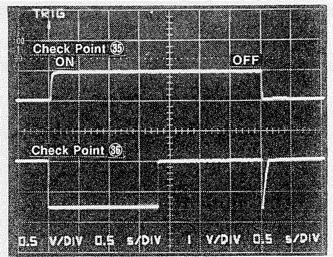


- Upper Tab Voices..............Flute 8′
- Volume................................Max.
- Upper Key...........................C4
- Reverb Volume ....Max.

㉞



㉟, ㊱

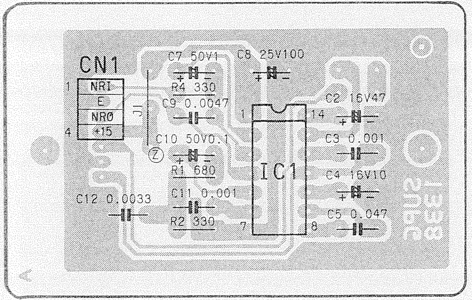


- Power SW..........................ON-OFF

SXPG131611B

CIRCUIT

SXPG133811



NOTES:
- IC'S

IC1, 13:	SVIGM5241L
IC2, 10, 11, 14,15:	SVIGM5218L
IC3, 4, 7, 9:	SVIGUPD4066B
IC5, 6:	SVIGM5238L
IC8:	SVIG65002018
IC12:	SVIGM5216LL
IC16:	AN6913

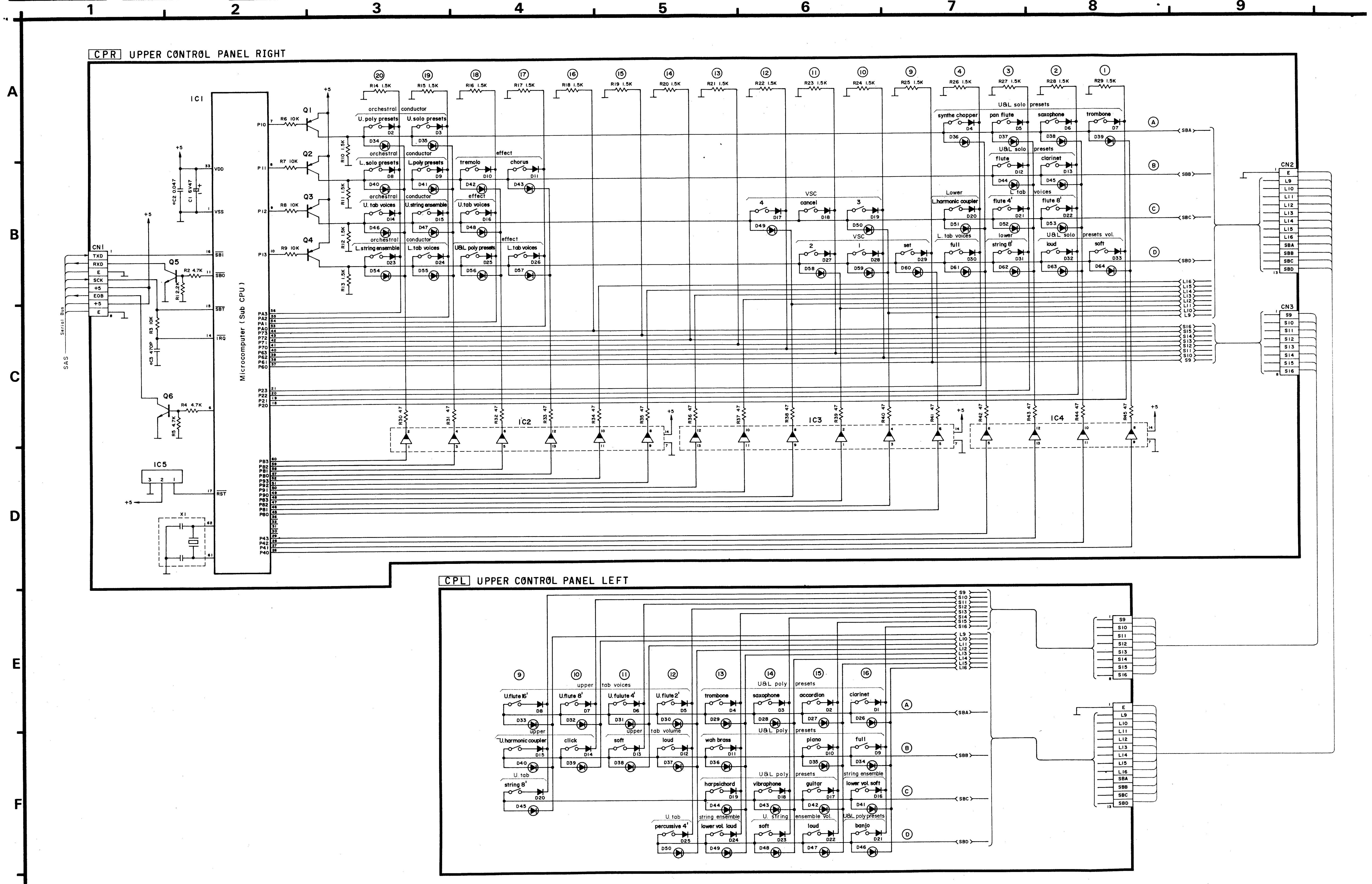
- TRANSISTORS

Q1, 2:	2SJ40CD
Q3:	2SA933STRS

- DIODES

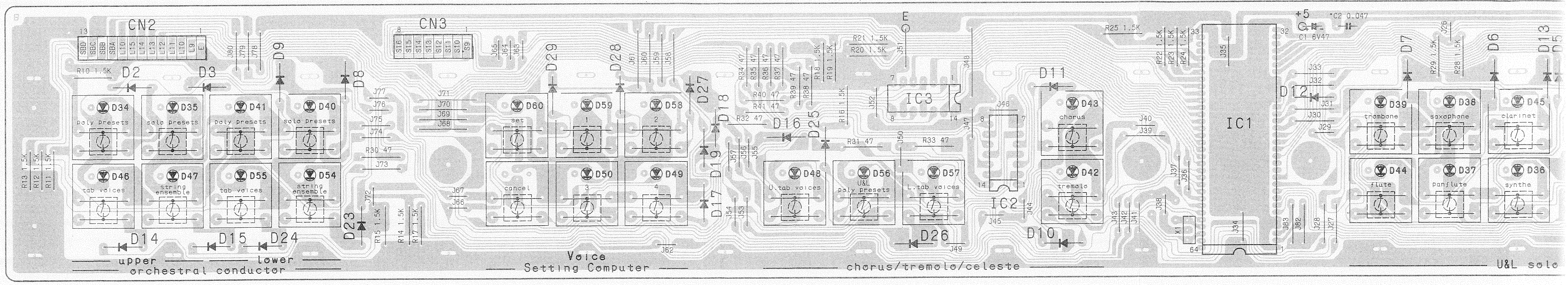
D1∼5:	MA165TA5

CPR , CPL UPPER CONTROL PANEL CIRCUIT DIAGRAM



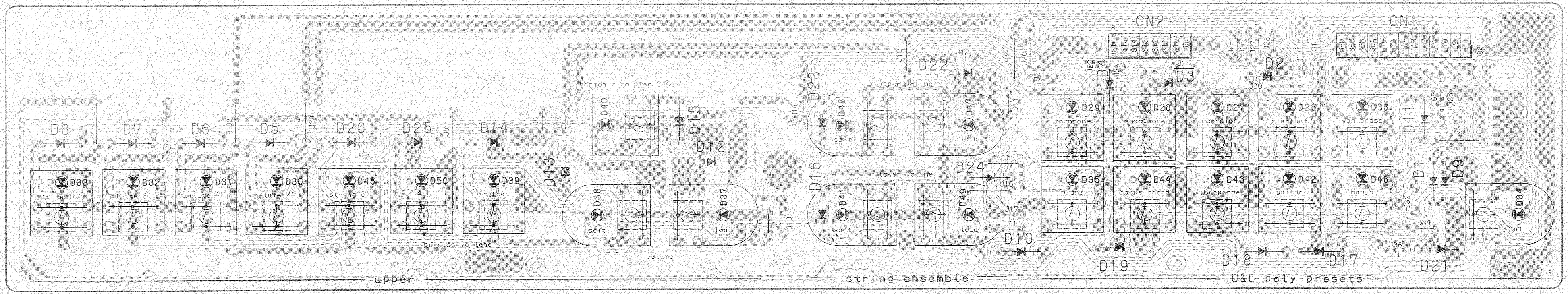
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
CPR UPPER CONTROL PANEL RIGHT
IC1
Microcomputer (Sub CPU)
VDD
VSS
SBI
SBO
SBT
IRQ
RST
P10
P11
P12
P13
Q1
Q2
Q3
Q4
Q5
Q6
R6 10K
R7 10K
R8 10K
R9 10K
R10 1.5K
R11 1.5K
R12 1.5K
R13 1.5K
R2 4.7K
R1 2.2K
R3 10K
R4 4.7K
R5 4.7K
C2 0.047
C1 6V47
C3 470P
IC5
X1
CN1
TXD
RXD
E
SCK
+5
EOB
Serial Bus
SAS
orchestral
conductor
U. poly presets
U. solo presets
L. solo presets
L.poly presets
U. tab voices
U.string ensemble
L.string ensemble
L. tab voices
U&L poly presets
L. tab voices
tremolo
chorus
effect
synthe chopper
pan flute
saxophone
trombone
U&L solo presets
flute
clarinet
L. tab voices
flute 4'
flute 8'
Lower
L.harmonic coupler
VSC
4
cancel
3
2
1
set
full
string 8'
loud
soft
lower
presets vol.
U&L solo
IC2
IC3
IC4
CN2
CN3
SBA
SBB
SBC
SBD
L9
L10
L11
L12
L13
L14
L15
L16
S9
S10
S11
S12
S13
S14
S15
S16
CPL UPPER CONTROL PANEL LEFT
U.flute 16'
U.flute 8'
U.fulute 4'
U.flute 2'
upper tab voices
trombone
saxophone
accordion
clarinet
U&L poly presets
U.harmonic coupler
click
soft
loud
upper tab volume
wah brass
piano
full
U. tab
string 8'
harpsichord
vibraphone
guitar
string ensemble
lower vol. soft
percussive 4'
lower vol. loud
U. string ensemble vol.
soft
loud
banjo
U&L poly presets

CPR UPPER CONTROL PANEL RIGHT CIRCUIT BOARD


CN2
CN3
IC1
IC2
IC3
D34 poly presets
D35 solo presets
D41 poly presets
D40 solo presets
D46 tab voices
D47 string ensemble
D55 tab voices
D54 string ensemble
D60 set
D59 1
D58 2
cancel
D50 3
D49 4
D48 U.tab voices
D56 U&L poly presets
D57 L.tab voices
D43 chorus
D42 tremolo
D39 trombone
D38 saxophone
D45 clarinet
D44 flute
D37 panflute
D36 synthe
upper
lower
orchestral conductor
Voice Setting Computer
chorus/tremolo/celeste
U&L solo

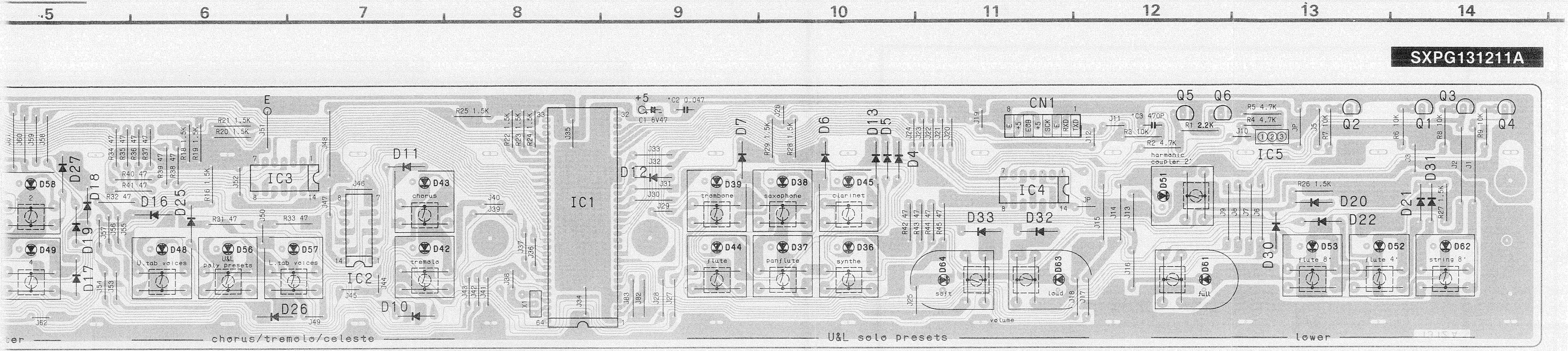
CPL UPPER CONTROL PANEL LEFT CIRCUIT BOARD

SXPG131211B


CN2
CN1
D33 flute 16'
D32 flute 8'
D31 flute 4'
D30 flute 2'
D45 string 8'
D50 4
D39 click
percussive tone
harmonic coupler 2 2/3'
D40
D38 soft
D37 loud
volume
upper volume
D48 soft
D47 loud
lower volume
D41 soft
D49 loud
D29 trombone
D28 saxophone
D27 accordion
D26 clarinet
D36 wah brass
D35 piano
D44 harpsichord
D43 vibraphone
D42 guitar
D46 banjo
D34 full
upper
string ensemble
U&L poly presets

OARD

SXPG131211A



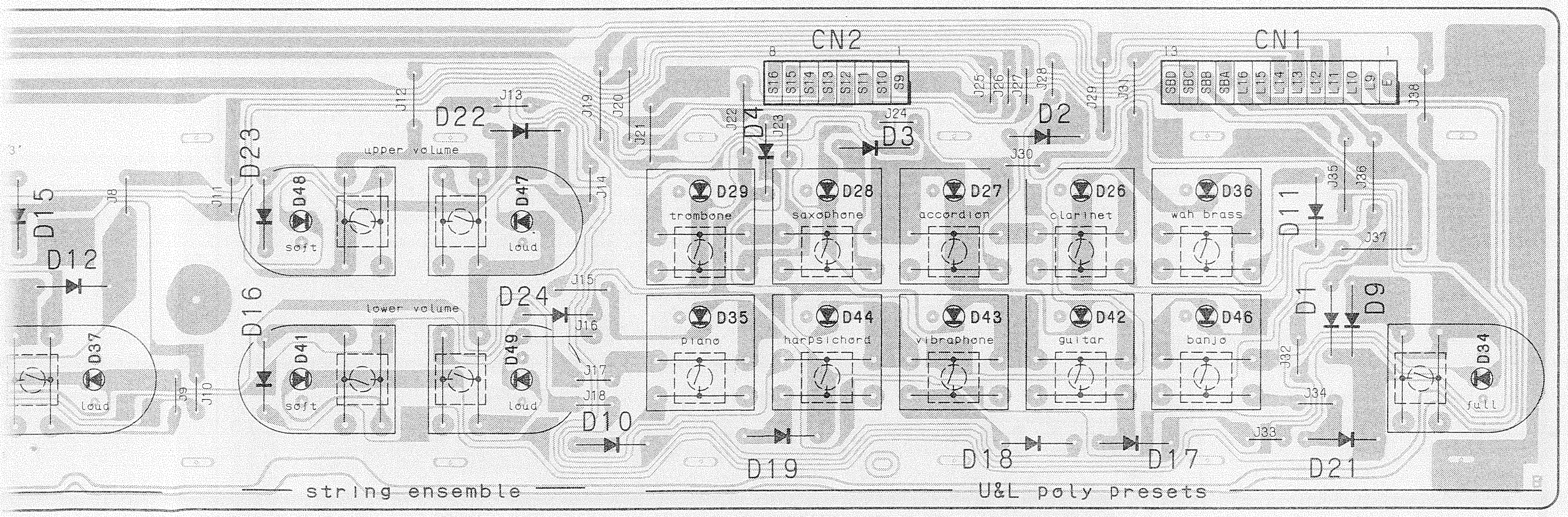
5
6
7
8
9
10
11
12
13
14
IC1
IC2
IC3
IC4
IC5
CN1
Q1
Q2
Q3
Q4
Q5
Q6
E
+5
C1 6V47
C2 0.047
C3 470P
R1 2.2K
R2 4.7K
R3 10K
R4 4.7K
R5 4.7K
R26 1.5K
R27 1.5K
chorus
tremolo
U.tab voices
U&L poly presets
L.tab voices
trombone
saxophone
clarinet
flute
panflute
synthe
soft
loud
volume
full
harmonic coupler 2'
flute 8'
flute 4'
string 8'
chorus/tremolo/celeste
U&L solo presets
lower

NOTES:

- IC'S
  - IC1: MN15524PGP
  - IC2~4: SVIGM53217
  - IC5: MN1280R
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D2~33: MA162A
  - D34~48, 52~57, 61~64: SEL2210SLFM1 (red)
  - D49~51, 58~60: SEL2710KLFM1 (yellow)

BOARD

SXPG131211B

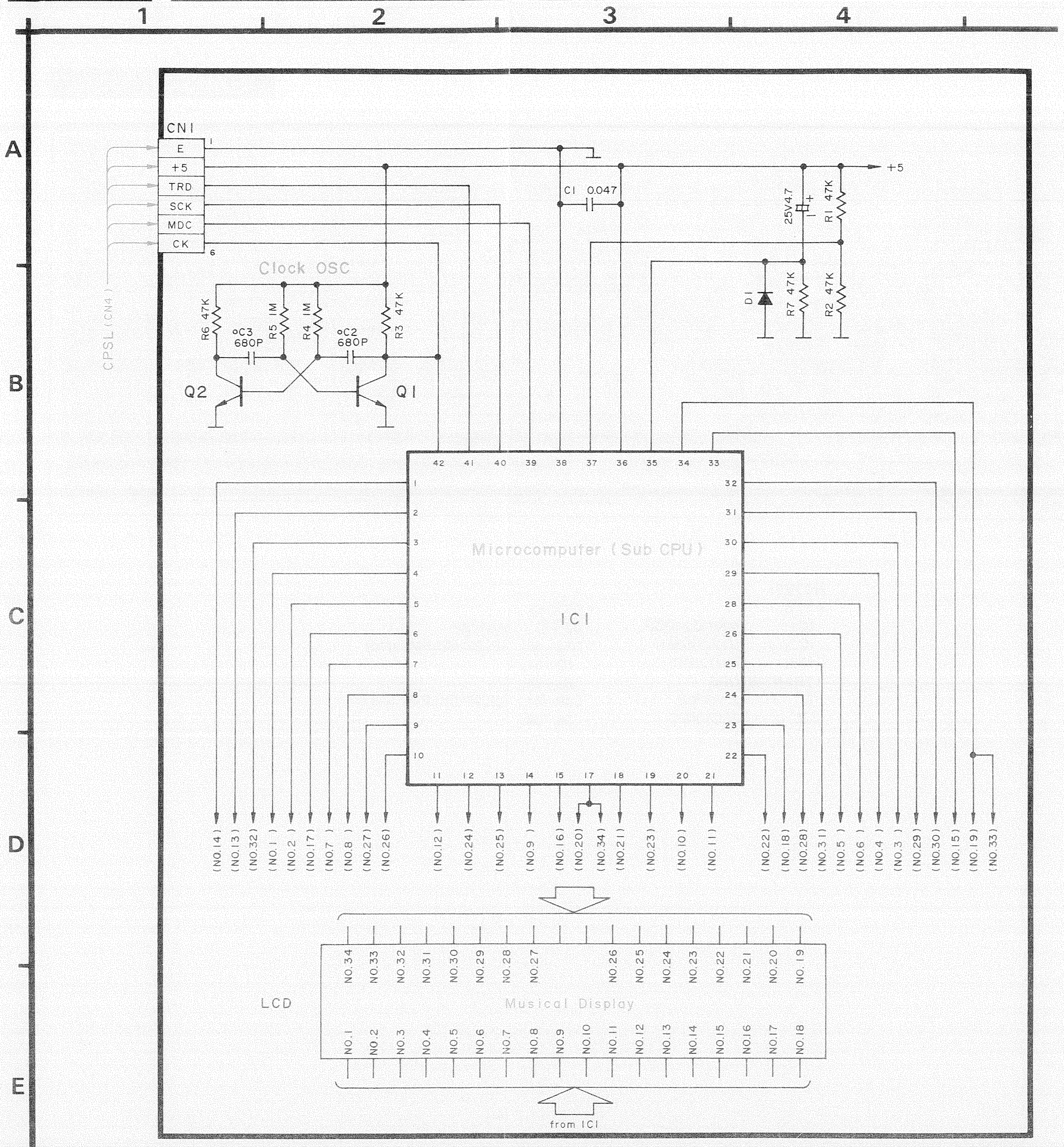


CN1
CN2
upper volume
lower volume
soft
loud
trombone
saxophone
accordion
clarinet
wah brass
piano
harpsichord
vibraphone
guitar
banjo
full
string ensemble
U&L poly presets

NOTES:

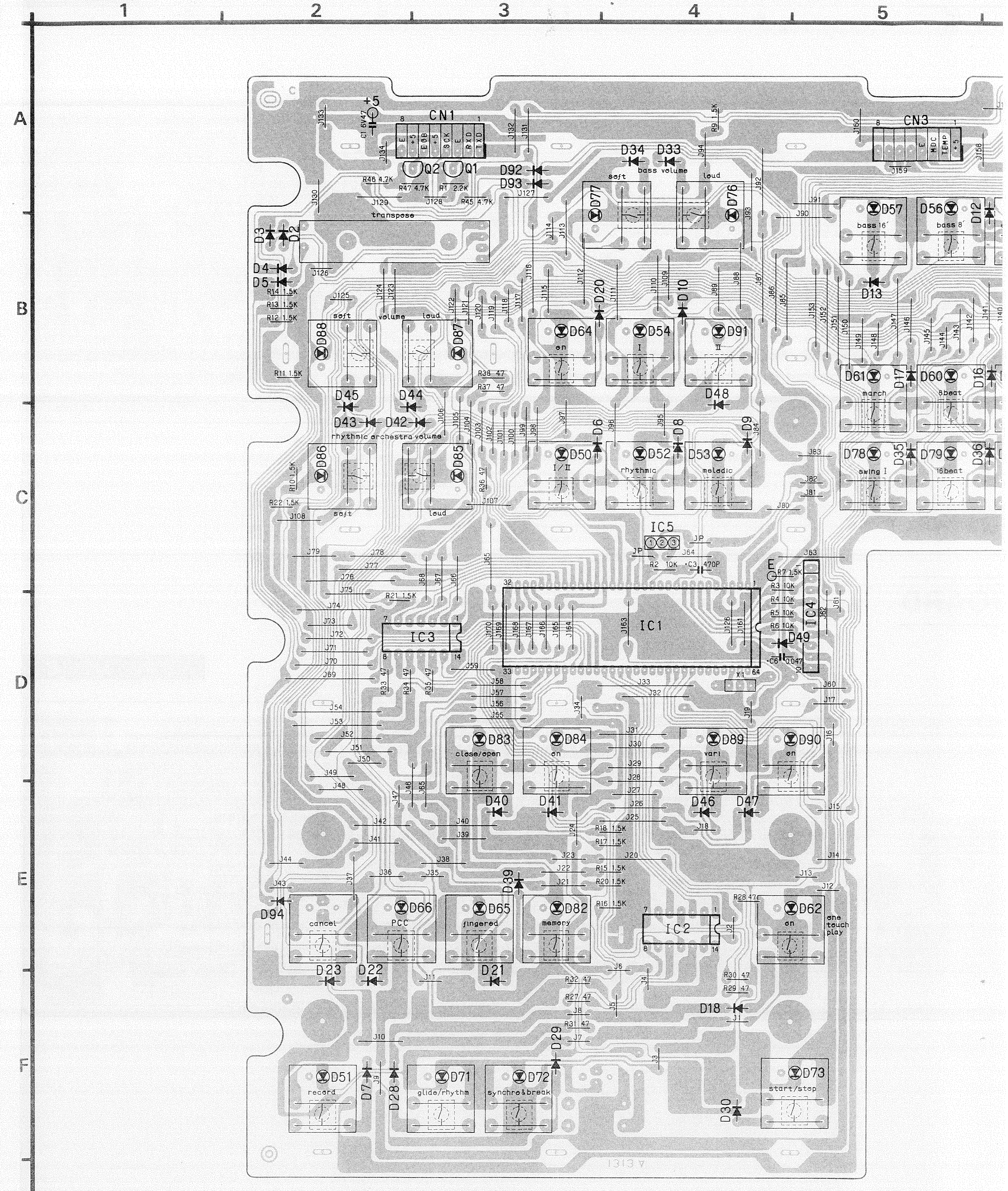
- DIODES
  - D1~25: MA162A
  - D26~39, 41~50: SEL2210SLFM1 (red)
  - D40: SEL2710KLFM1 (yellow)

MD MUSICAL DISPLAY CIRCUIT


1
2
3
4
A
B
C
D
E
F
CN1
E
+5
TRD
SCK
MDC
CK
CPSL(CN4)
Clock OSC
R6 47K
C3 680P
R5 1M
R4 1M
C2 680P
R3 47K
Q2
Q1
C1 0.047
25V47
R1 47K
D1
R7 47K
R2 47K
+5
Microcomputer (Sub CPU)
IC1
LCD
Musical Display
from IC1

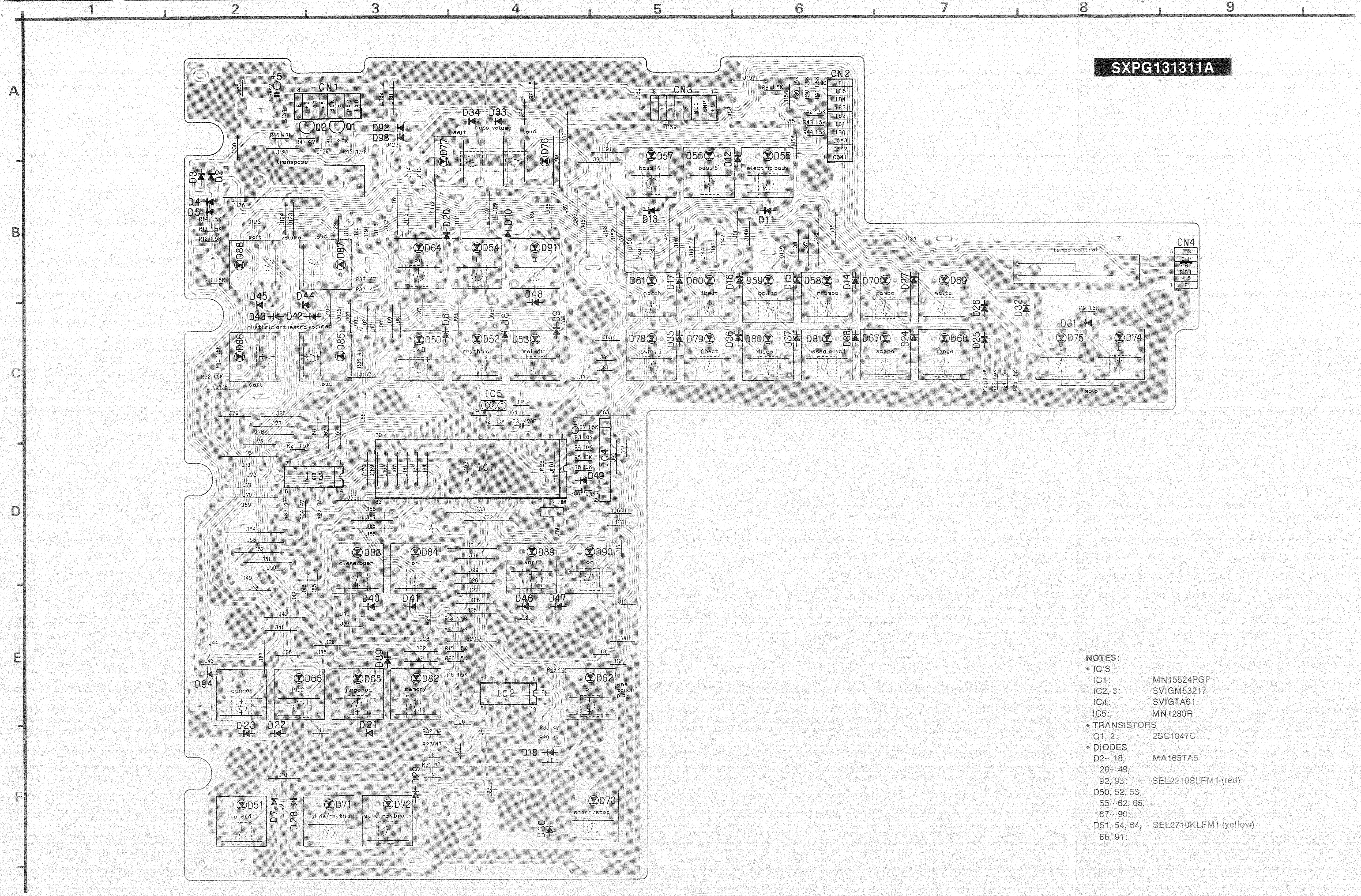
NOTES:
- TRANSISTORS
  Q1, 2: 2SC2320LFG
- DIODE
  D1: MA165TA5

CPSL LOWER CONTROL PANEL LEFT CIRCUIT BOARD


1
2
3
4
5
A
B
C
D
E
F
CN1
CN3
IC1
IC2
IC3
IC4
IC5
Q1
Q2
transpose
soft
volume
loud
bass volume
bass 16'
bass 8'
on
I
II
march
8beat
rhythmic orchestra volume
I/II
rhythmic
melodic
swing I
16beat
close/open
on
vari
cancel
PCC
fingered
memory
one touch play
record
glide/rhythm
synchro&break
start/stop

CPSL

LOWER CONTROL PANEL LEFT CIRCUIT BOARD

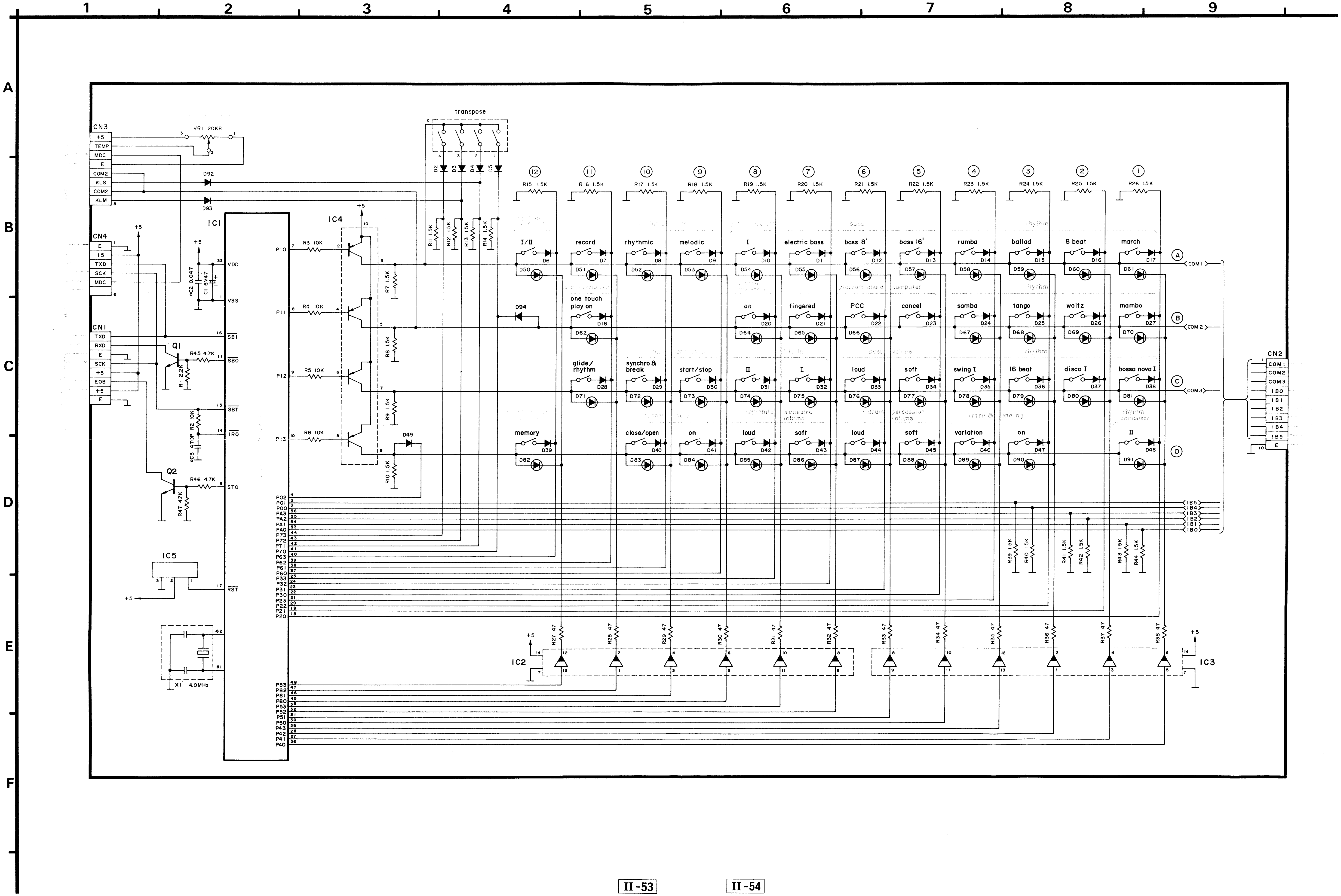

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
SXPG131311A
CN1
CN2
CN3
CN4
IC1
IC2
IC3
IC4
IC5
Q1
Q2
+5
transpose
soft
volume
loud
bass volume
bass 16'
bass 8'
electric bass
on
I
II
rhythmic orchestra volume
I / II
rhythmic
melodic
march
8beat
ballad
rhumba
mambo
waltz
swing I
16beat
disco I
bossa nova I
samba
tango
tempo control
solo
close/open
vari
cancel
PCC
fingered
memory
one touch play
record
glide/rhythm
synchro&break
start/stop

NOTES:

• IC'S	
IC1:	MN15524PGP
IC2, 3:	SVIGM53217
IC4:	SVIGTA61
IC5:	MN1280R
• TRANSISTORS	
Q1, 2:	2SC1047C
• DIODES	
D2~18,	MA165TA5
20~49,	
92, 93:	SEL2210SLFM1 (red)
D50, 52, 53,	
55~62, 65,	
67~90:	
D51, 54, 64,	SEL2710KLFM1 (yellow)
66, 91:	

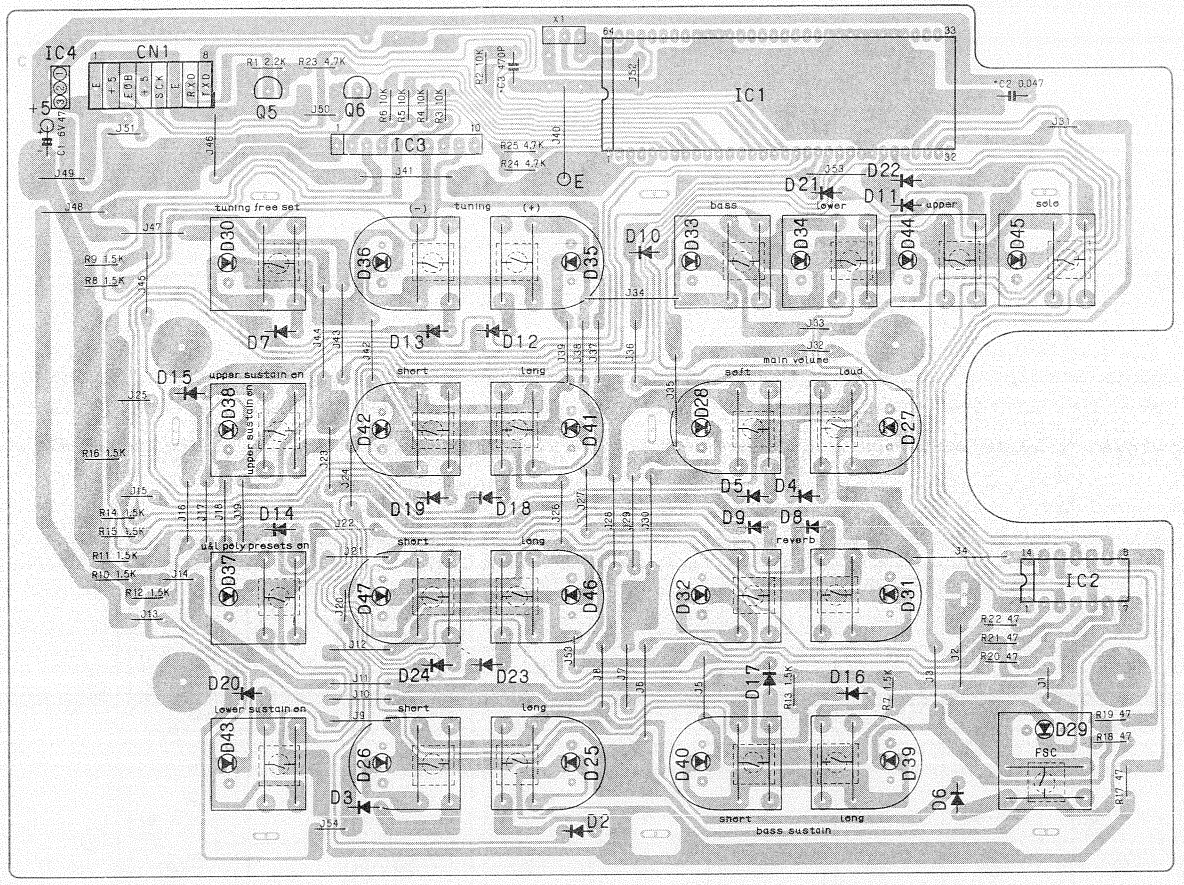
CPSL

LOWER CONTROL PANEL LEFT CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
CN3
+5
TEMP
MDC
E
COM2
KLS
COM2
KLM
VR1 20KB
D92
D93
CN4
E
+5
TXD
SCK
MDC
CN1
TXD
RXD
E
SCK
+5
EOB
+5
E
IC1
VDD
VSS
SB1
SB0
SBT
IRQ
STO
RST
C2 0.047
C1 6V47
C3 470P
R2 10K
Q1
R45 4.7K
R1 2.2K
Q2
R46 4.7K
R47 47K
IC5
X1 4.0MHz
P10
P11
P12
P13
R3 10K
R4 10K
R5 10K
R6 10K
IC4
R7 1.5K
R8 1.5K
R9 1.5K
R10 1.5K
D49
D94
transpose
D2
D3
D4
D5
R11 1.5K
R12 1.5K
R13 1.5K
R14 1.5K
P02
P01
P00
PA3
PA2
PA1
PA0
P73
P72
P71
P70
P63
P62
P61
P60
P33
P32
P31
P30
P23
P22
P21
P20
P83
P82
P81
P80
P53
P52
P51
P50
P43
P42
P41
P40
⑫
⑪
⑩
⑨
⑧
⑦
⑥
⑤
④
③
②
①
R15 1.5K
R16 1.5K
R17 1.5K
R18 1.5K
R19 1.5K
R20 1.5K
R21 1.5K
R22 1.5K
R23 1.5K
R24 1.5K
R25 1.5K
R26 1.5K
I/II
record
rhythmic
melodic
I
electric bass
bass 8'
bass 16'
rumba
ballad
8 beat
march
one touch play on
on
fingered
PCC
cancel
samba
tango
waltz
mambo
glide/rhythm
synchro & break
start/stop
II
I
loud
soft
swing I
16 beat
disco I
bossa nova I
memory
close/open
on
loud
soft
loud
soft
variation
on
II
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D20
D21
D22
D23
D24
D25
D26
D27
D28
D29
D30
D31
D32
D33
D34
D35
D36
D37
D38
D39
D40
D41
D42
D43
D44
D45
D46
D47
D48
D50
D51
D52
D53
D54
D55
D56
D57
D58
D59
D60
D61
D62
D64
D65
D66
D67
D68
D69
D70
D71
D72
D73
D74
D75
D76
D77
D78
D79
D80
D81
D82
D83
D84
D85
D86
D87
D88
D89
D90
D91
Ⓐ
Ⓑ
Ⓒ
Ⓓ
COM1
COM2
COM3
IB5
IB4
IB3
IB2
IB1
IB0
R39 1.5K
R40 1.5K
R41 1.5K
R42 1.5K
R43 1.5K
R44 1.5K
CN2
COM1
COM2
COM3
IB0
IB1
IB2
IB3
IB4
IB5
E
R27 47
R28 47
R29 47
R30 47
R31 47
R32 47
R33 47
R34 47
R35 47
R36 47
R37 47
R38 47
IC2
IC3
+5

CPSR LOWER CONTROL PANEL RIGHT CIRCUIT BOARD

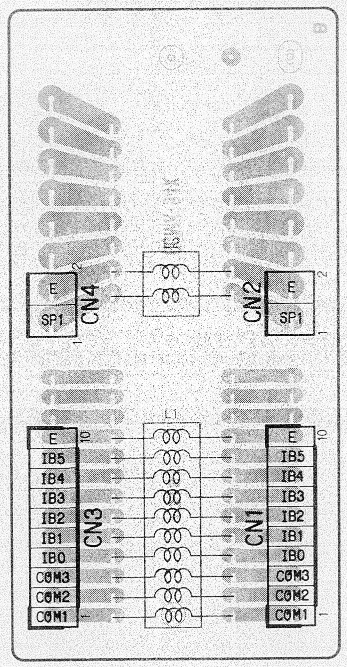
SXPG131311B


IC1
IC2
IC3
IC4
CN1
Q5
Q6
X1
tuning free set
tuning
(-)
(+)
bass
lower
upper
solo
upper sustain on
short
long
soft
main volume
loud
reverb
U&L poly presets on
lower sustain on
FSC
bass sustain

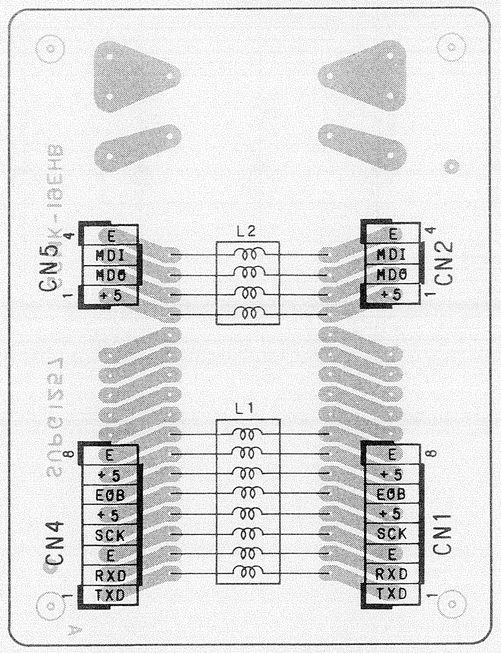
LF LF2 FILTER CIRCUIT BOARD

* **NOTE:** PRODUCTS FOR [EZ] ONLY

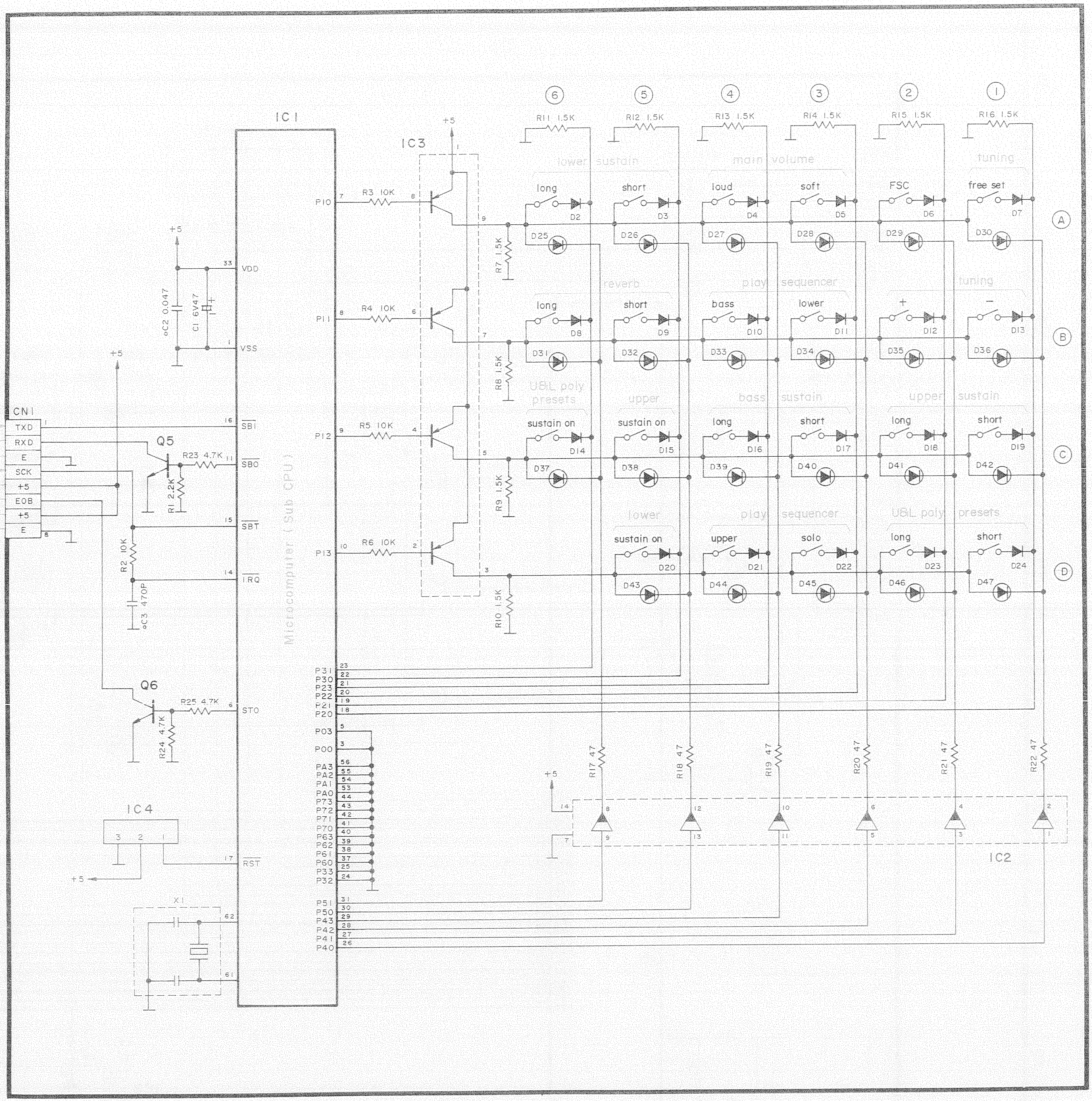
LF **SXPG131941C**


CN4
CN2
CN3
CN1
L1
E
SP1
IB5
IB4
IB3
IB2
IB1
IB0
COM3
COM2
COM1

LF2 **SXPG125741**


CN5
CN2
CN4
CN1
L1
L2
E
MDI
MDO
+5
E0B
SCK
RXD
TXD

CPSR LOWER CONTROL PANEL RIGHT CIRCUIT DIAGRAM


IC1
Microcomputer (Sub CPU)
IC2
IC3
IC4
CN1
TXD
RXD
E
SCK
+5
E0B
Q5
Q6
X1
lower sustain
main volume
tuning
reverb
play sequencer
U&L poly presets
upper
bass sustain
upper sustain
lower
long
short
loud
soft
FSC
free set
sustain on
solo
+
−

NOTES:

- IC'S

IC1:	MN15524PGP
IC2:	SVIGM53217
IC3:	SVIGTA61
IC4:	MN1280R

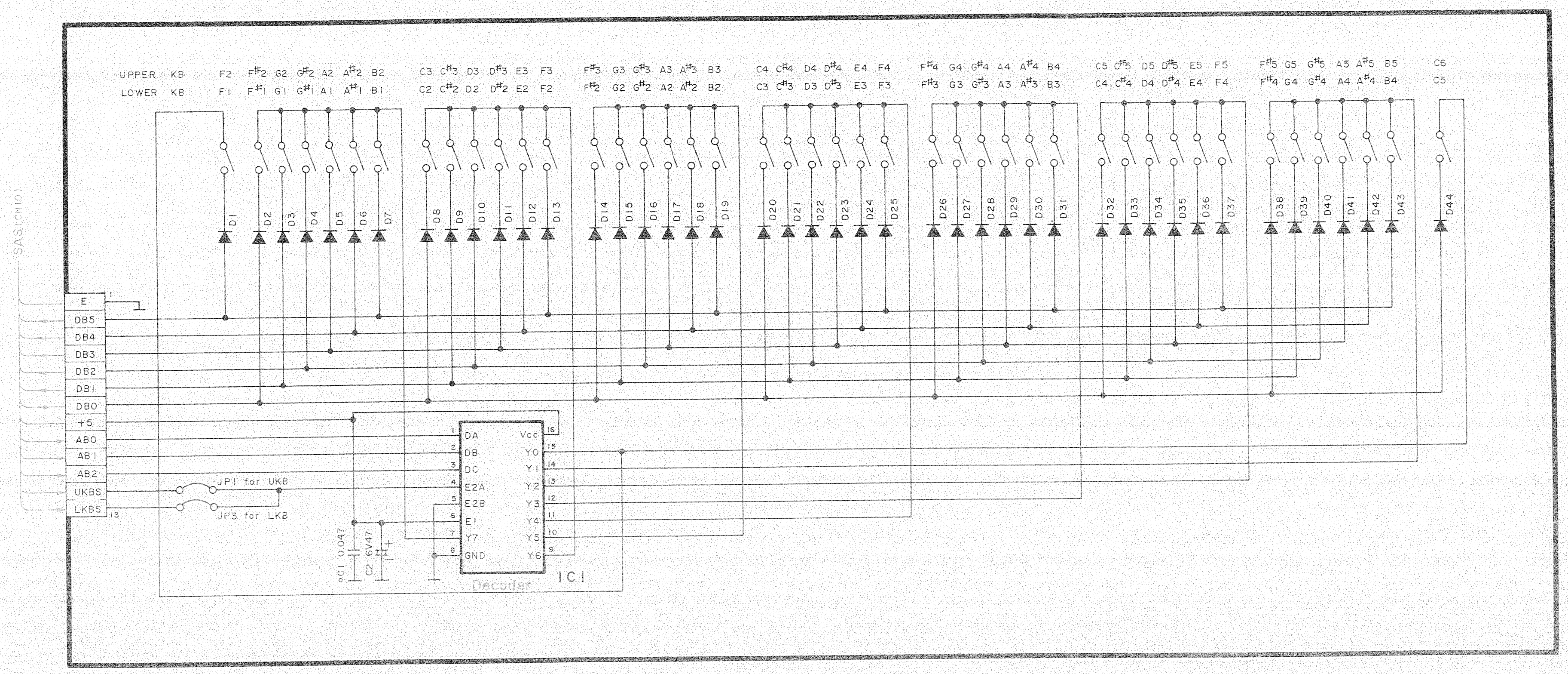
- TRANSISTORS

Q5, 6:	2SC1047C

- DIODES

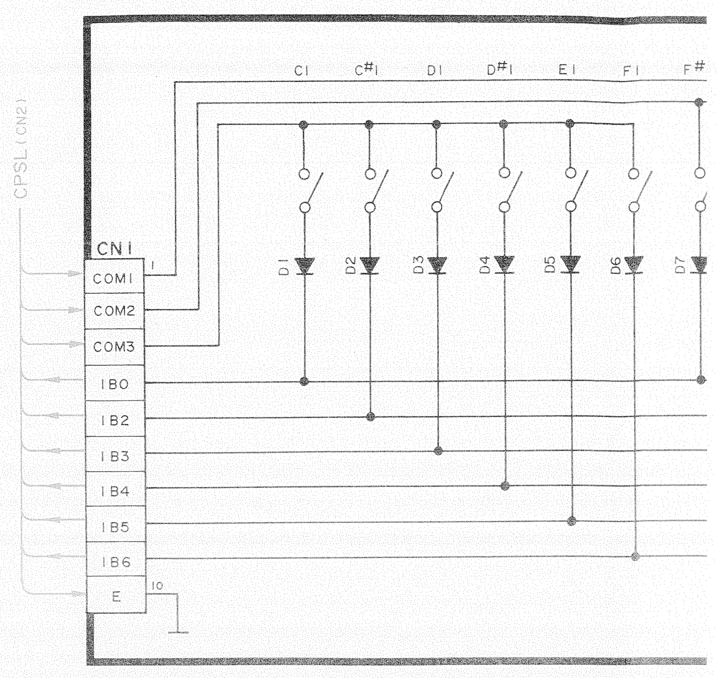
D2~24:	MA165TA5
D25~28, 30~32, 35~43, 46, 47:	SEL2210SLFM1 (red)
D29, 33, 34, 44, 45:	SEL2710SLFM1 (yellow)

MKB MANUAL KEYBOARD CIRCUIT DIAGRAM

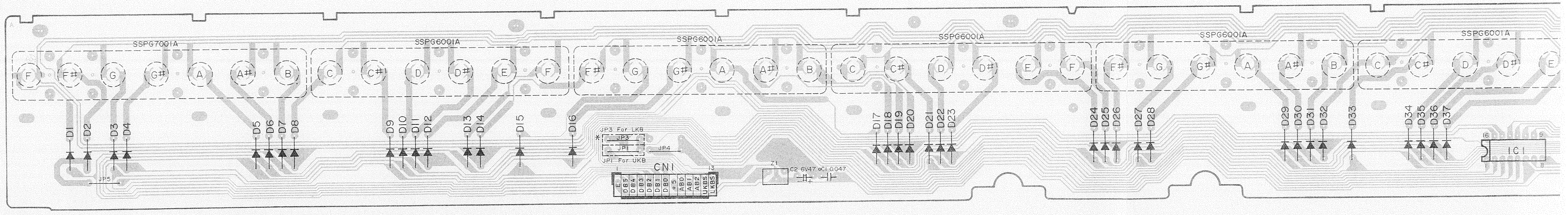

UPPER KB
LOWER KB
SAS (CN10)
E
DB5
DB4
DB3
DB2
DB1
DB0
+5
AB0
AB1
AB2
UKBS
LKBS
JP1 for UKB
JP3 for LKB
C1 0.047
C2 6V47
DA
DB
DC
E2A
E2B
E1
Y7
GND
Vcc
Y0
Y1
Y2
Y3
Y4
Y5
Y6
Decoder
IC1
D1 – D44

NOTES:
- IC
  IC1: SVIGM74LS138
- DIODES
  D1~44: MA165TA5

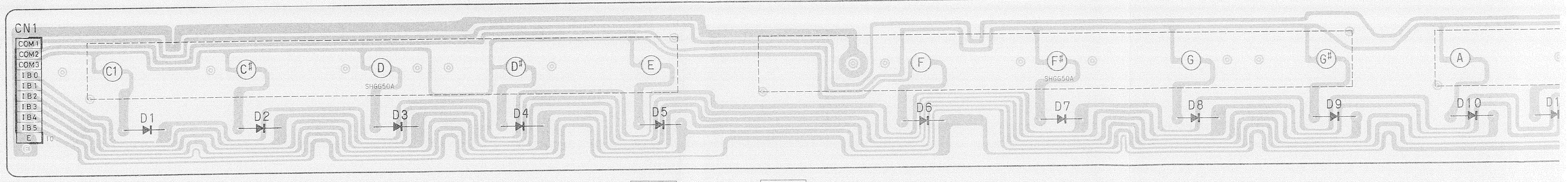
PKB PEDAL KEYBOARD CIRCU

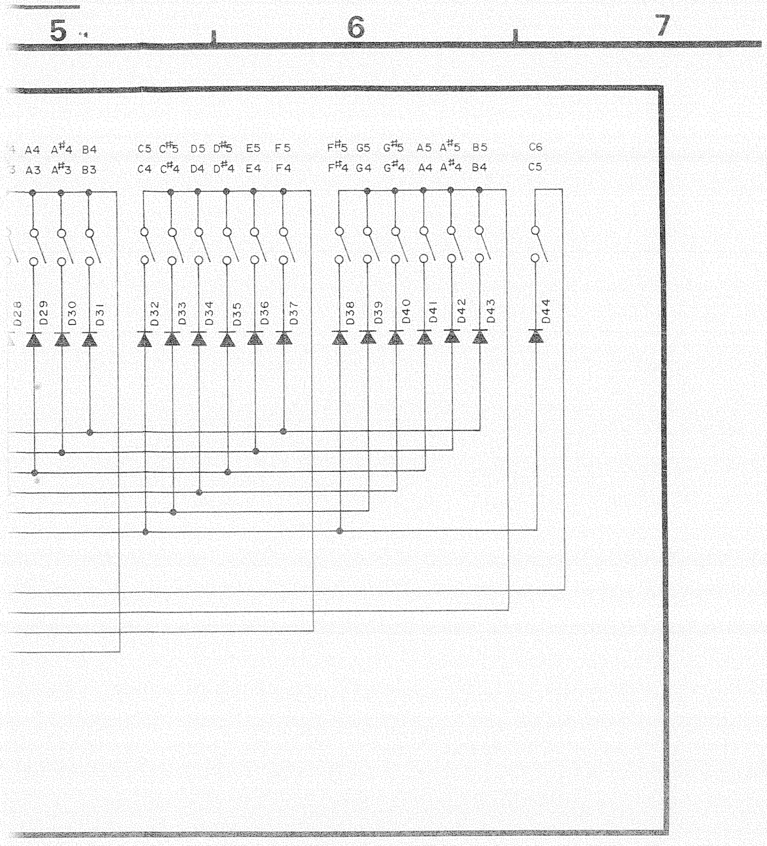

CPSL (CN2)
CN1
COM1
COM2
COM3
IB0
IB2
IB3
IB4
IB5
IB6
E
C1
C#1
D1
D#1
E1
F1
D1
D2
D3
D4
D5
D6
D7

MKB MANUAL KEYBOARD CIRCUIT BOARD


SSPG7001A
SSPG6001A
JP3 For LKB
JP1 For UKB
JP4
JP5
CN1
IC1
Z1
C2 6V47
C1 0.047

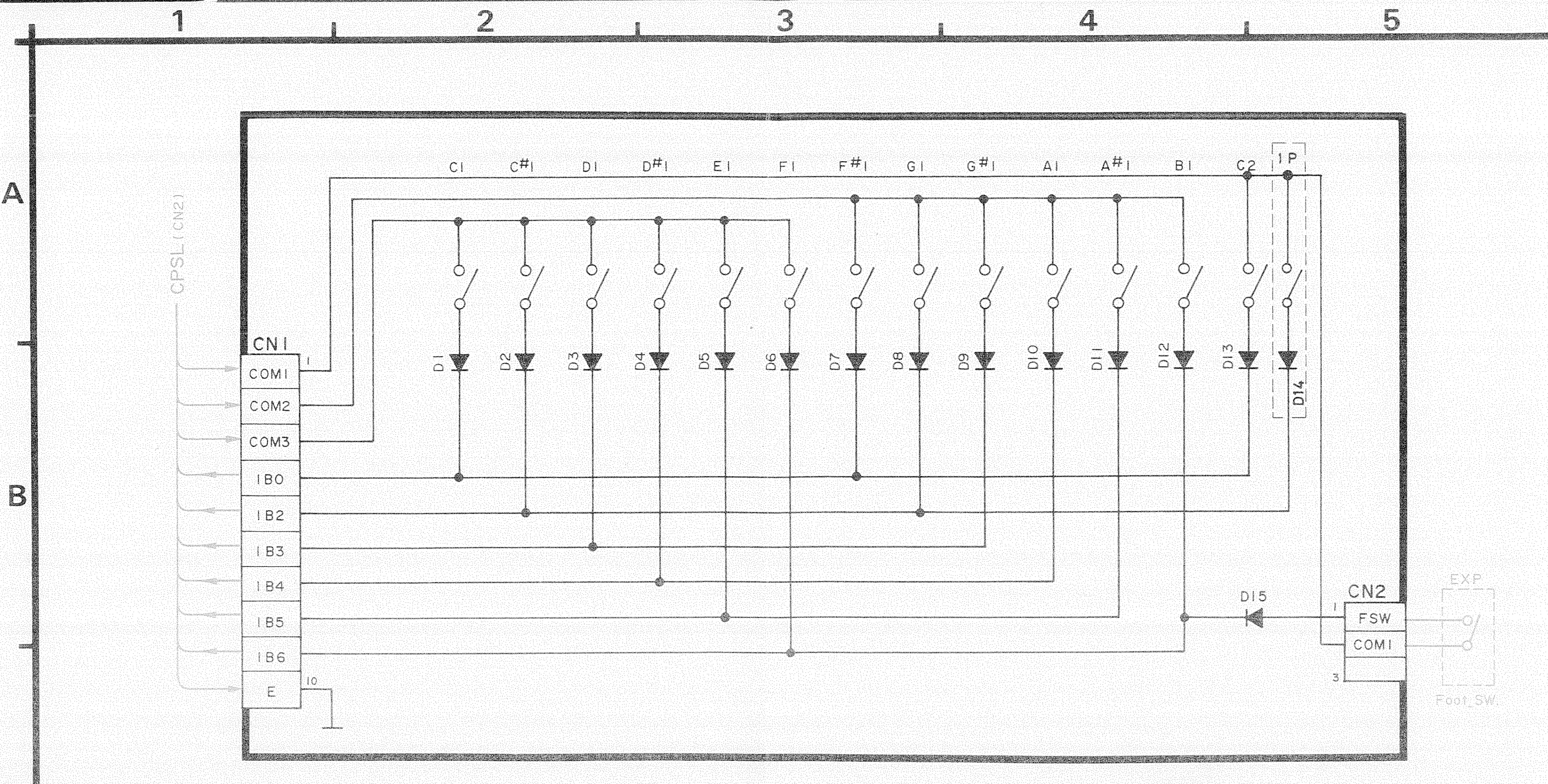
PKB PEDAL KEYBOARD CIRCUIT BOARD


CN1
COM1
COM2
COM3
IB0
IB1
IB2
IB3
IB4
IB5
E
SHGG50A
C1
C#
D
D#
E
F
F#
G
G#
A
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10



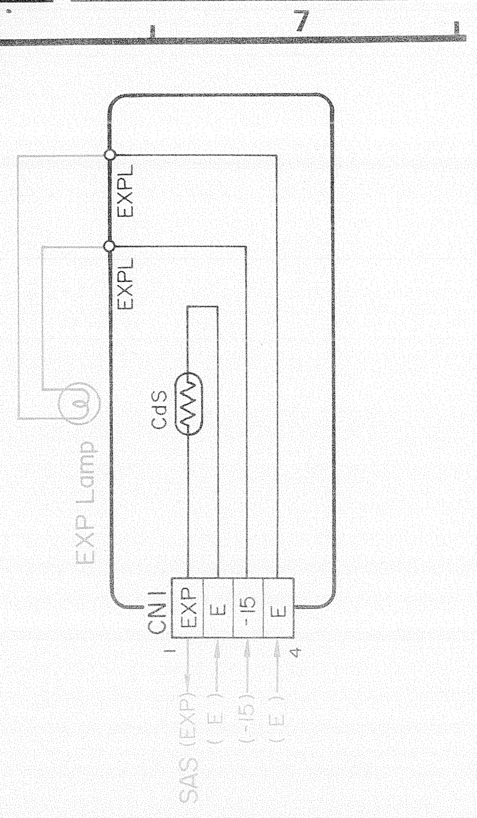
5
6
7
A4 A#4 B4
A3 A#3 B3
C5 C#5 D5 D#5 E5 F5
C4 C#4 D4 D#4 E4 F4
F#5 G5 G#5 A5 A#5 B5
F#4 G4 G#4 A4 A#4 B4
C6
C5
D28 D29 D30 D31 D32 D33 D34 D35 D36 D37 D38 D39 D40 D41 D42 D43 D44

NOTES:
- IC
  IC1: SVIGM74LS138
- DIODES
  D1~44: MA165TA5



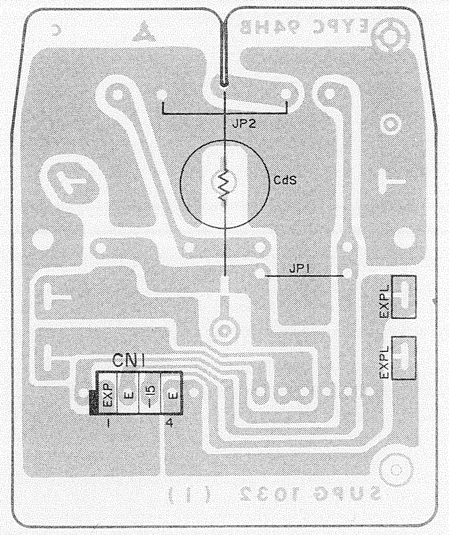
1
2
3
4
5
A
B
C
CPSL (CN2)
CN1
COM1
COM2
COM3
IB0
IB2
IB3
IB4
IB5
IB6
E
10
C1 C#1 D1 D#1 E1 F1 F#1 G1 G#1 A1 A#1 B1 C2 1P
D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14
D15
CN2
FSW
COM1
EXP
Foot SW

NOTES:
- DIODES
  D1~13, 15: MA162A



6
7
EXPL
EXPL
CdS
EXP Lamp
CN1
EXP
E
-15
E
SAS (EXP)
(E)
(-15)
(E)

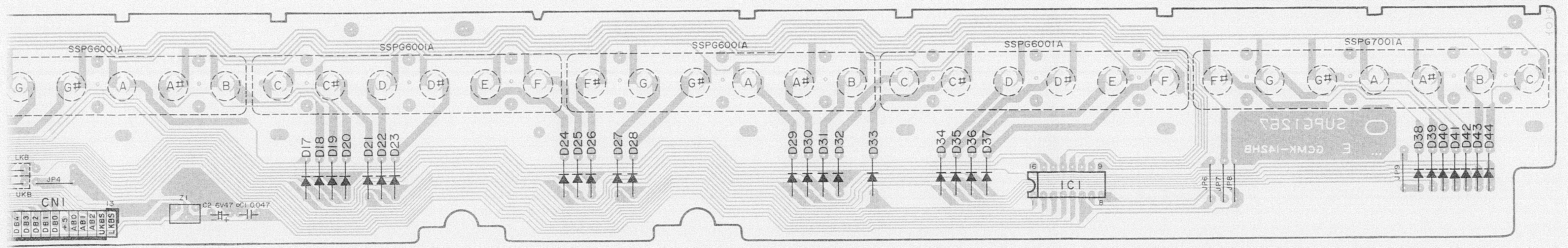
EXP P.C.B. **SXPG103211**



JP2
CdS
JP1
EXPL
EXPL
CN1
EXP
E
-15
E

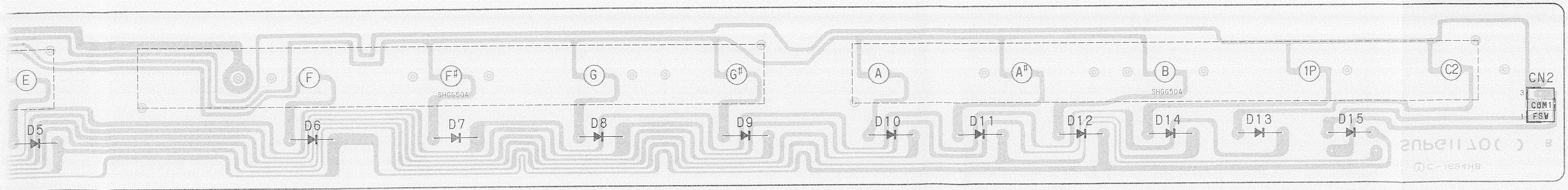
∗ Upper Keyboard **SXPG126711**

∗ Lower Keyboard **SXPG126721**



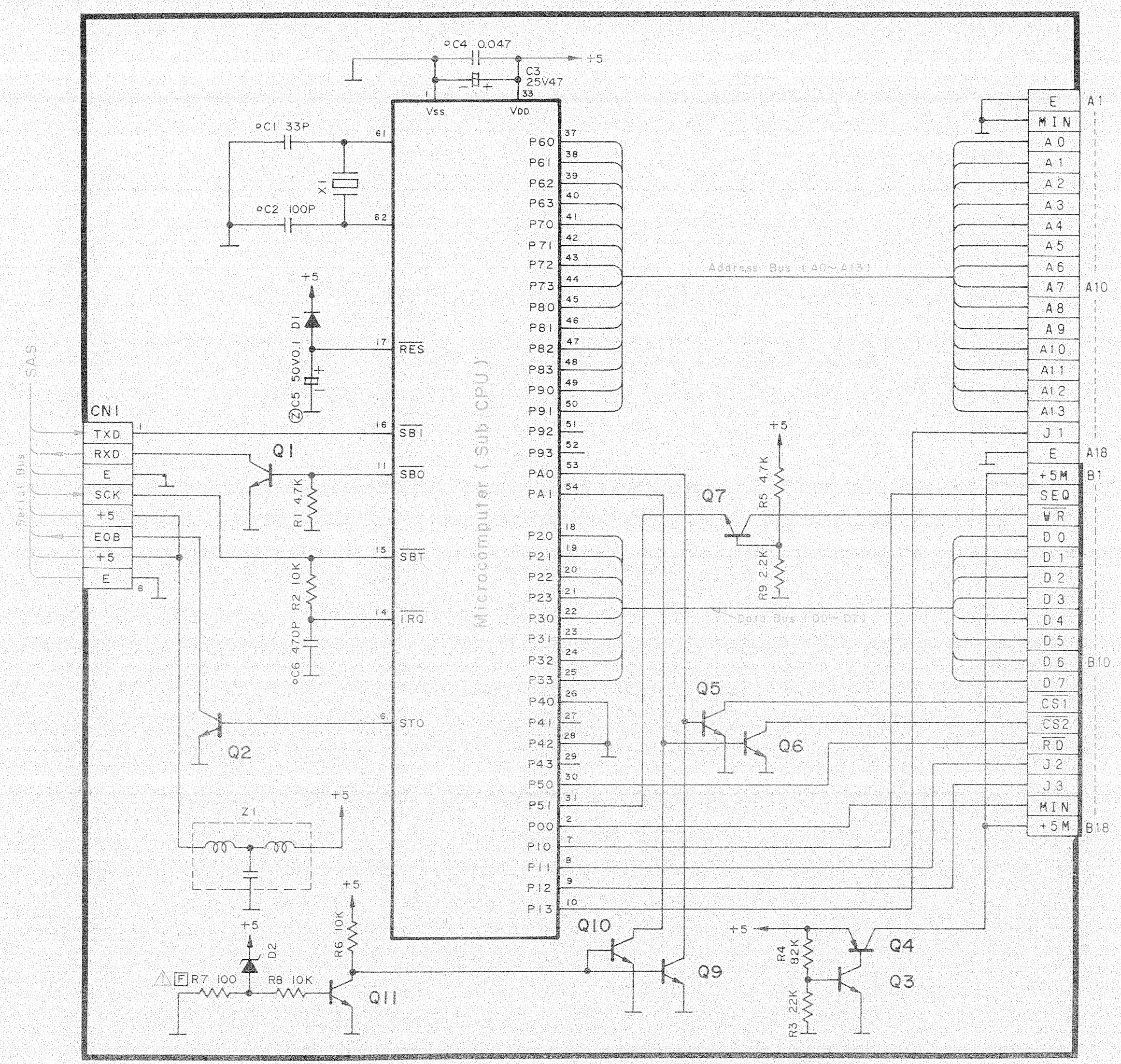
SSPG6001A
SSPG6001A
SSPG6001A
SSPG6001A
SSPG7001A
G G# A A# B C C# D D# E F F# G G# A A# B C C# D D# E F F# G G# A A# B C
D17 D18 D19 D20 D21 D22 D23 D24 D25 D26 D27 D28 D29 D30 D31 D32 D33 D34 D35 D36 D37 D38 D39 D40 D41 D42 D43 D44
IC1
LKB
UKB
JP4
CN1
Z1
C2 6V47
C1 0.047

SXPG11701



E F F# G G# A A# B 1P C2
D5 D6 D7 D8 D9 D10 D11 D12 D14 D13 D15
SHG650A
SHG650A
CN2
COM1
FSW

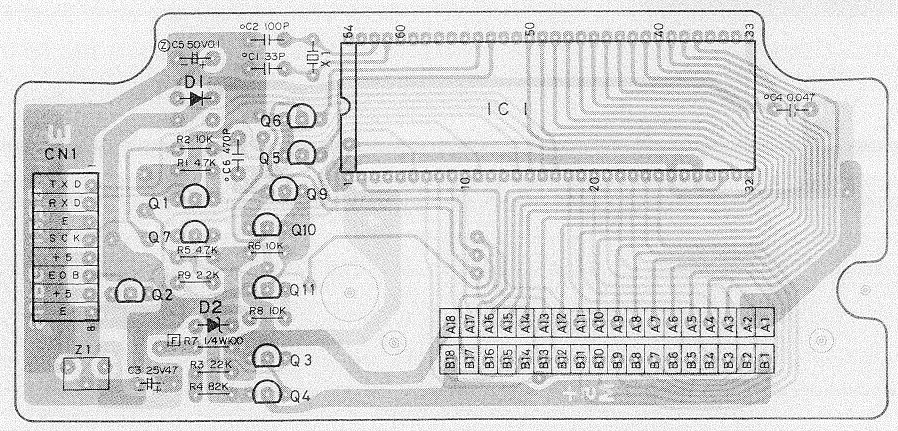
MPC MEMORY PACK CONTROL CIRCUIT DIAGRAM


CN1
TXD
RXD
E
SCK
+5
EOB
+5
E
Serial Bus
SAS
C1 33P
C2 100P
X1
C4 0.047
C3 25V47
+5
Vss
VDD
D1
C5 50V0.1
RES
SBI
SBO
SBT
IRQ
STO
R1 4.7K
R2 10K
C6 470P
Q1
Q2
Z1
Microcomputer (Sub CPU)
P60
P61
P62
P63
P70
P71
P72
P73
P80
P81
P82
P83
P90
P91
P92
P93
PA0
PA1
P20
P21
P22
P23
P30
P31
P32
P33
P40
P41
P42
P43
P50
P51
P00
P10
P11
P12
P13
Address Bus (A0~A13)
Data Bus (D0~D7)
Q7
R5 4.7K
R9 2.2K
Q5
Q6
Q10
Q9
Q4
Q3
R4 82K
R3 22K
R6 10K
D2
R7 100
R8 10K
Q11
E
MIN
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
J1
E
+5M
SEQ
WR
D0
D1
D2
D3
D4
D5
D6
D7
CS1
CS2
RD
J2
J3
MIN
+5M
A1
A10
A18
B1
B10
B18

NOTES:
- IC
  - IC1: MN15621PGB
- DIODES
  - D1: MA165TA5
  - D2: MA1036H
- TRANSISTORS
  - Q1, 2, 7: 2SC1047C
  - Q3, 5, 6, 9~11: 2SC2320LFG
  - Q4: 2SA1015GR

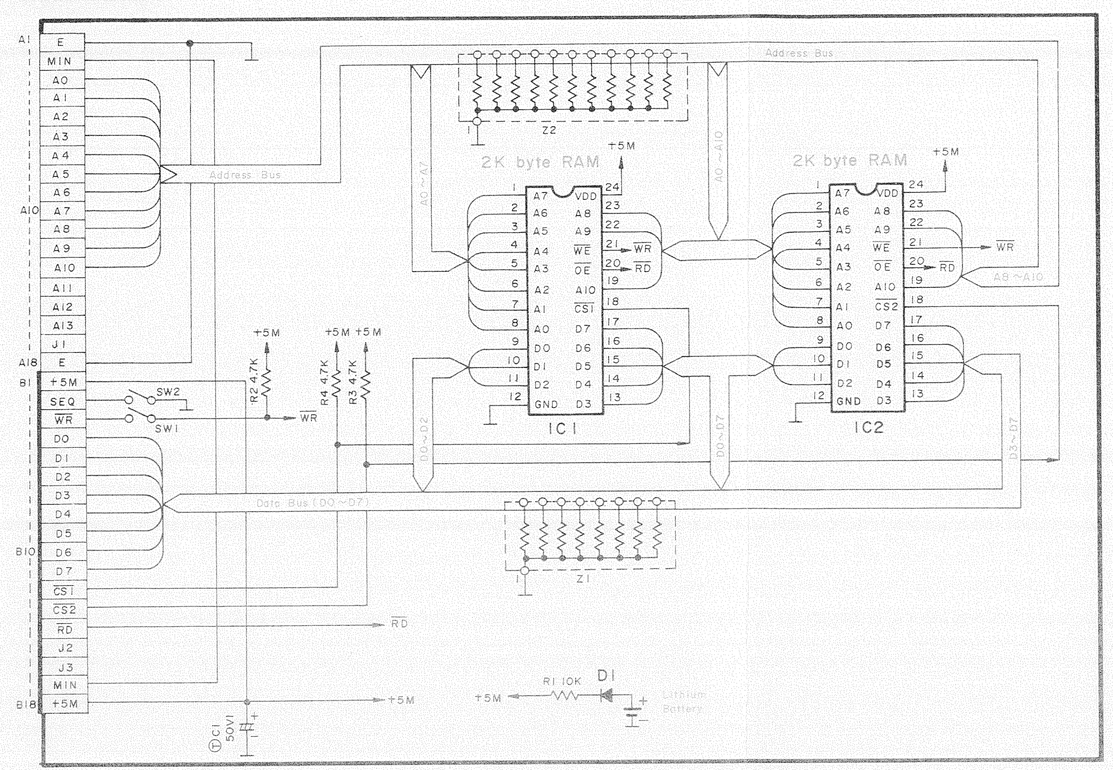
MPC MEMORY PACK CONTROL CIRCUIT BOARD

SXPG12281


C2 100P
C5 50V0.1
C1 33P
X1
D1
IC1
C4 0.047
CN1
TXD
RXD
E
SCK
+5
EOB
+5
E
R2 10K
R1 4.7K
C6 470P
Q6
Q5
Q9
Q1
Q7
Q10
R5 4.7K
R6 10K
R9 2.2K
Q2
Q11
D2
R8 10K
R7 1/4W100
Z1
C3 25V47
R3 22K
R4 82K
Q3
Q4
A18
A17
A16
A15
A14
A13
A12
A11
A10
A9
A8
A7
A6
A5
A4
A3
A2
A1
B18
B17
B16
B15
B14
B13
B12
B11
B10
B9
B8
B7
B6
B5
B4
B3
B2
B1
1
10
20
32
33
40
50
60
64

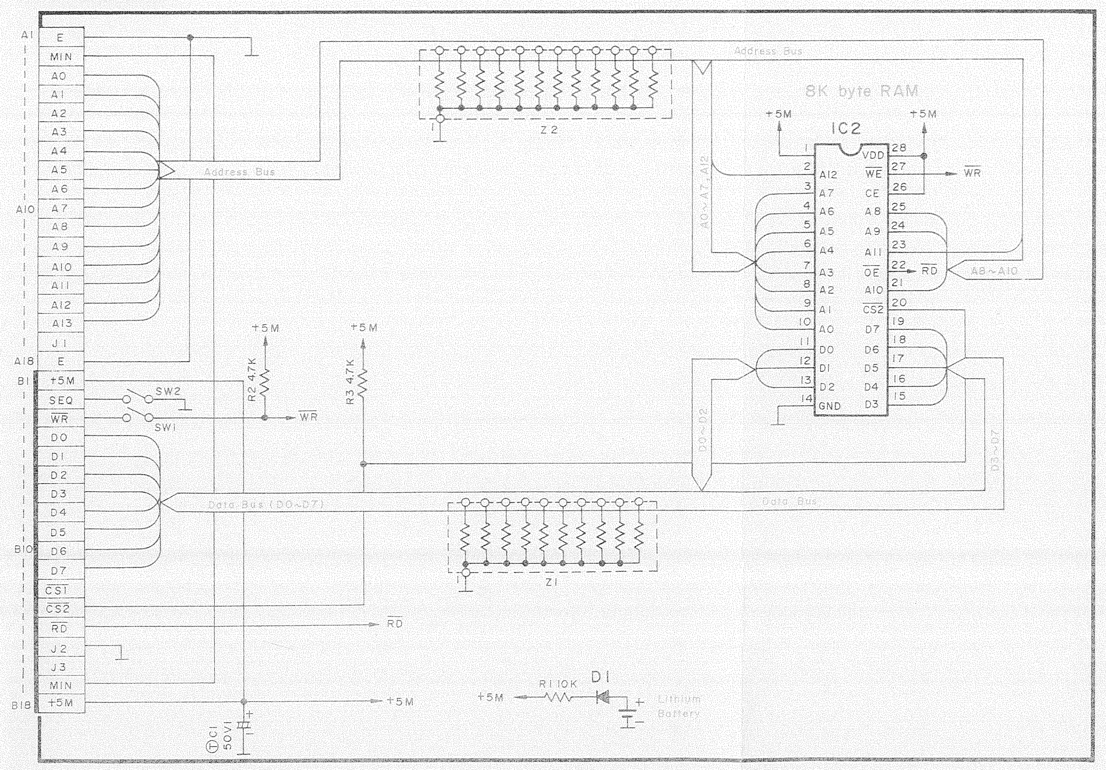
MP MEMORY PACK CIRCUIT DIAGRAM

SY-P2


Address Bus
Z2
2K byte RAM
IC1
IC2
+5M
A7
A6
A5
A4
A3
A2
A1
A0
D0
D1
D2
GND
VDD
A8
A9
WE
OE
A10
CS1
CS2
D7
D6
D5
D4
D3
WR
RD
A8~A10
A0~A7
A0~A10
D0~D2
D3~D7
D0~D7
Data Bus (D0~D7)
Z1
SW1
SW2
R2 4.7K
R3 4.7K
R4 4.7K
C1 50V1
R1 10K
D1
Lithium Battery

NOTES:
- IC'S
  - IC1, 2: SVIGM512820R
- DIODE
  - D1: MA165TA5

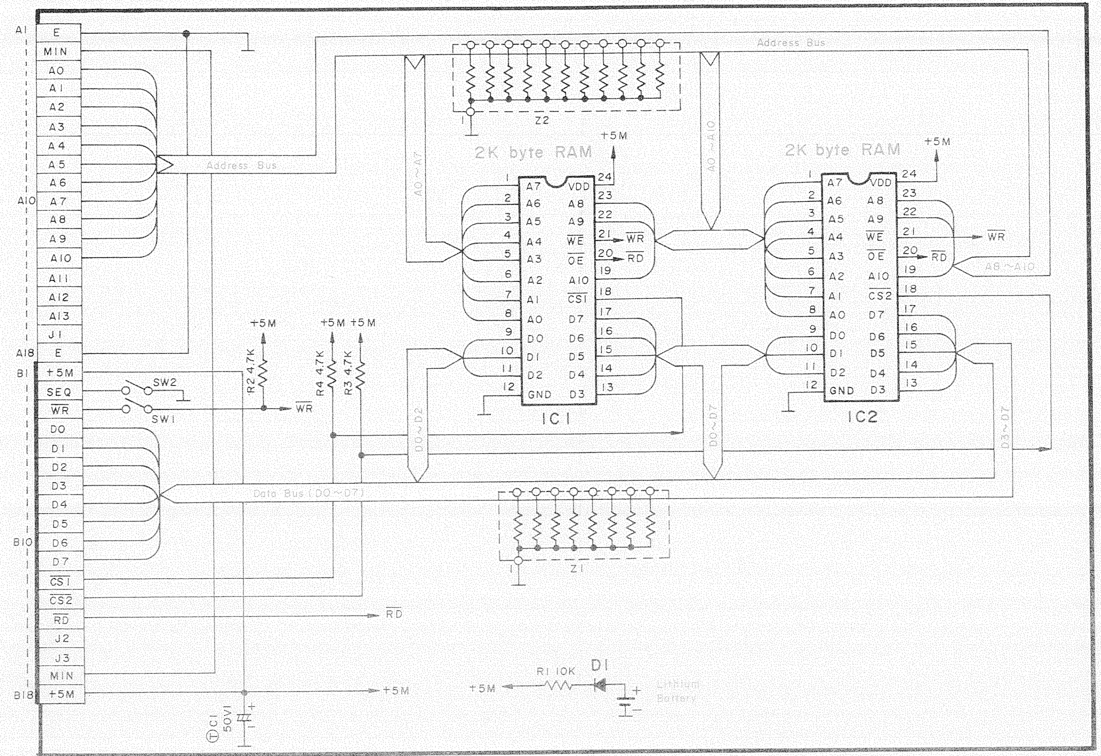
SY-P3


Address Bus
Z2
8K byte RAM
IC2
+5M
A12
A7
A6
A5
A4
A3
A2
A1
A0
D0
D1
D2
GND
VDD
WE
CE
A8
A9
A11
OE
A10
CS2
D7
D6
D5
D4
D3
WR
RD
A8~A10
A0~A7, A12
D0~D2
D3~D7
Data Bus (D0~D7)
Data Bus
Z1
SW1
SW2
R2 4.7K
R3 4.7K
C1 50V1
R1 10K
D1
Lithium Battery

NOTES:
- IC
  - IC1: SVIG6264LP15
- DIODE
  - D1: MA165TA5

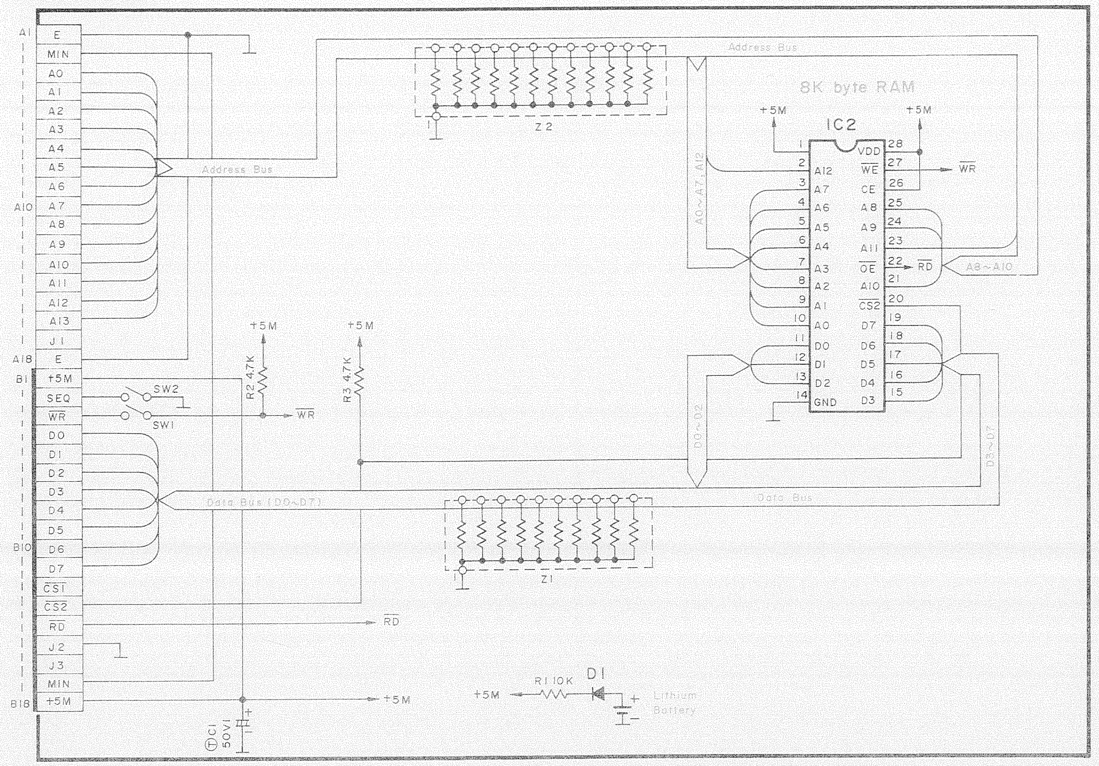
MP MEMORY PACK CIRCUIT DIAGRAM

SY-P2


Address Bus
Z2
2K byte RAM
IC1
2K byte RAM
IC2
+5M
WR
RD
A8~A10
A0~A7
D0~D7
Data Bus (D0~D7)
Z1
SW2
SW1
R2 4.7K
R4 4.7K
R3 4.7K
R1 10K
D1
Lithium Battery
C1 50V1

NOTES:
- IC'S
  IC1, 2: SVIGM512820R
- DIODE
  D1: MA165TA5

SY-P3

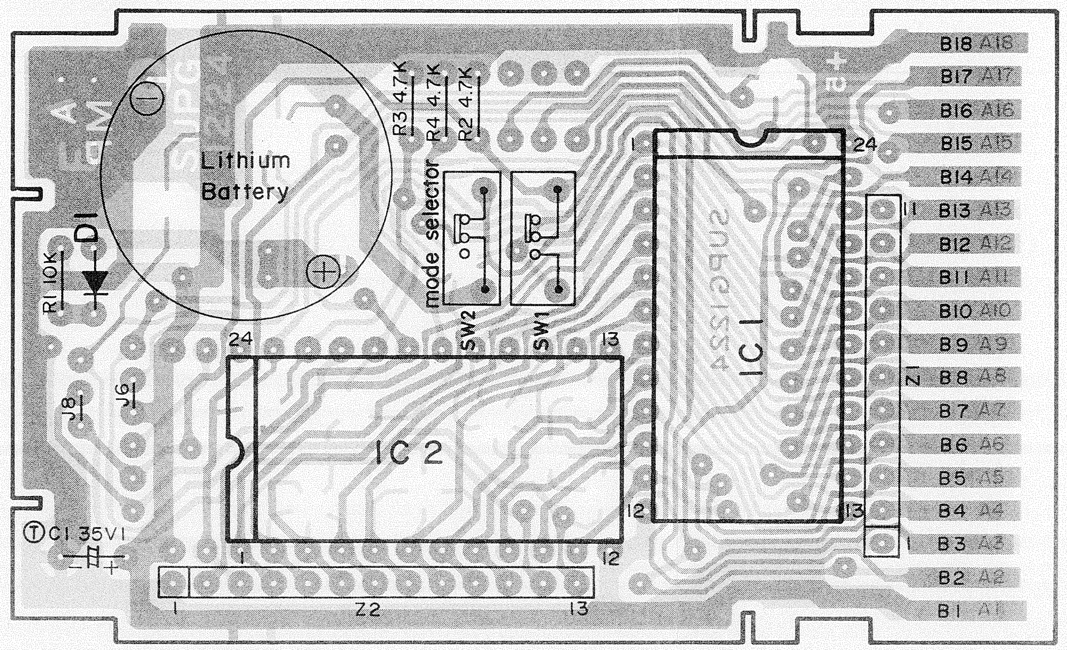

Address Bus
Z2
8K byte RAM
IC2
+5M
WR
RD
A8~A10
A0~A7, A12
D0~D7
Data Bus (D0~D7)
Z1
SW2
SW1
R2 4.7K
R3 4.7K
R1 10K
D1
Lithium Battery
C1 50V1

NOTES:
- IC
  IC1: SVIG6264LP15
- DIODE
  D1: MA165TA5

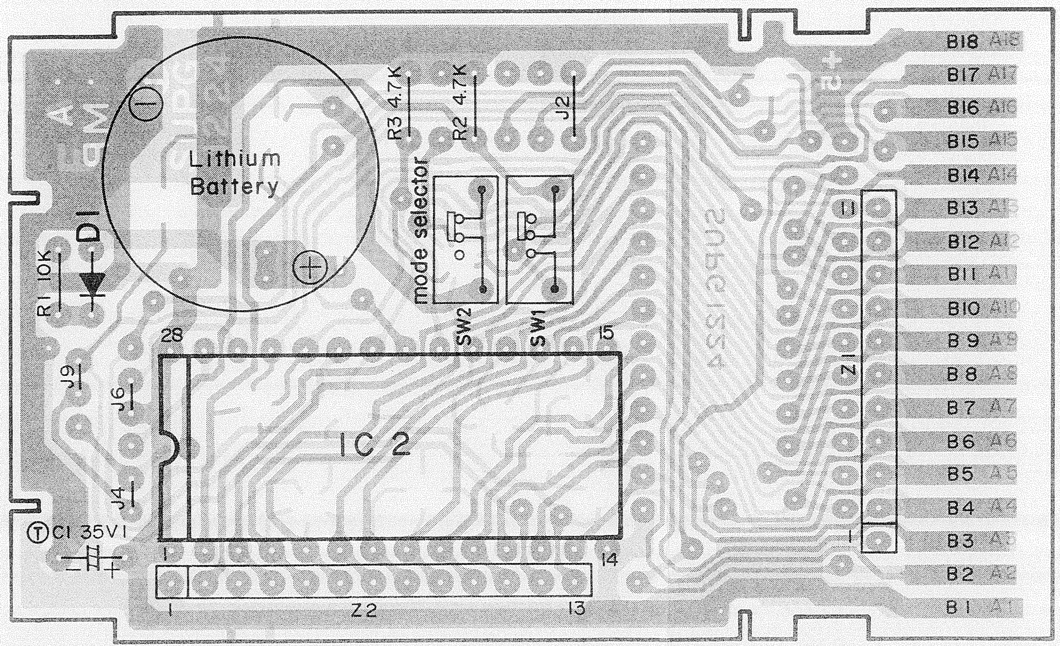
MP MEMORY PACK CIRCUIT BOARD

Circuit view on top of P.C.B

SY-P2 **SXPG12241**

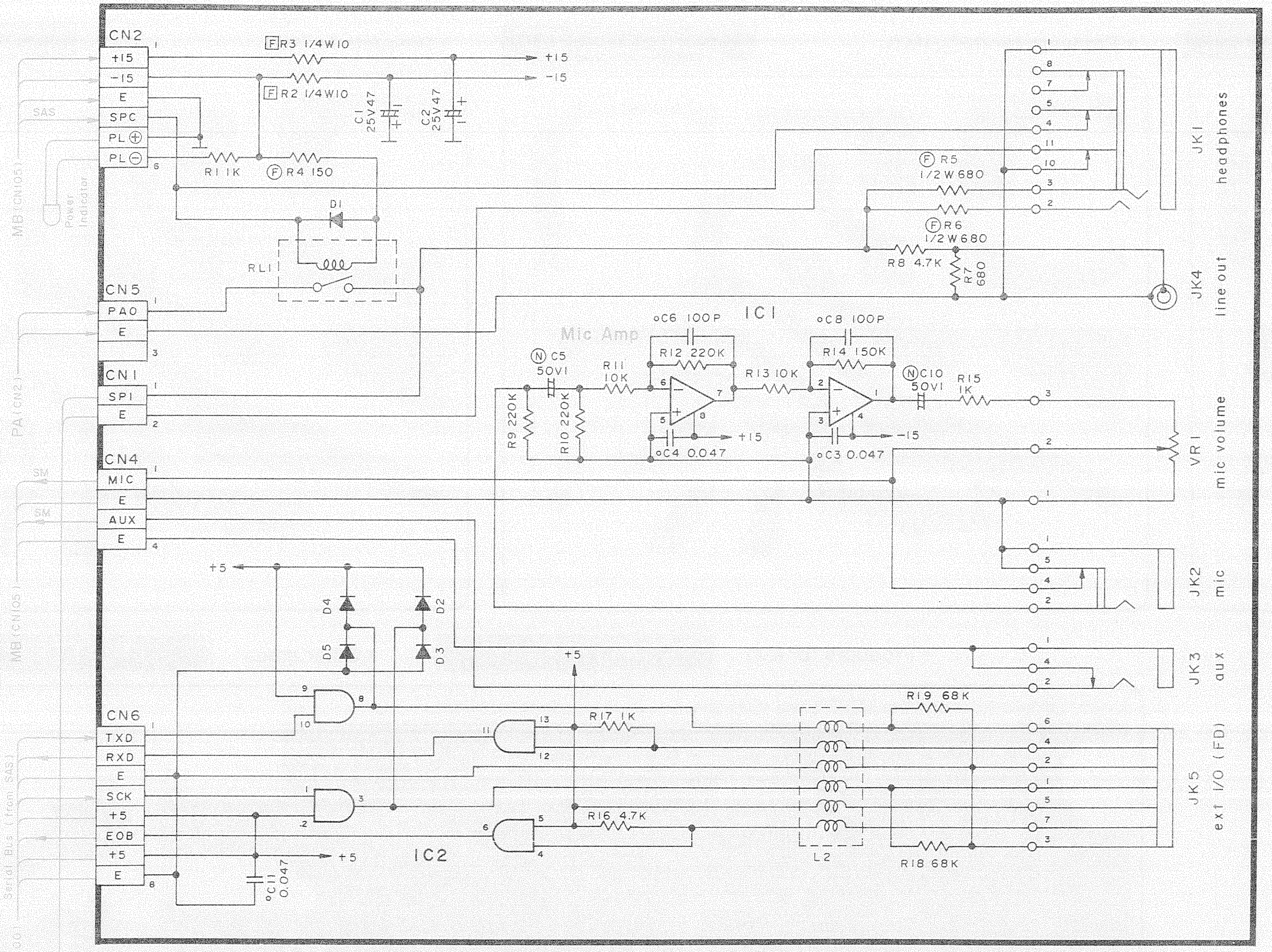

Lithium Battery
D1
R1 10K
R3 4.7K
R4 4.7K
R2 4.7K
mode selector
SW2
SW1
IC1
IC2
J8
J6
Z1
Z2
C1 35V1
B18 A18
B1 A1

SY-P3 **SXPG12242**


Lithium Battery
D1
R1 10K
R3 4.7K
R2 4.7K
J2
mode selector
SW2
SW1
IC2
J9
J6
J4
Z1
Z2
C1 35V1
B18 A18
B1 A1

JACK 1

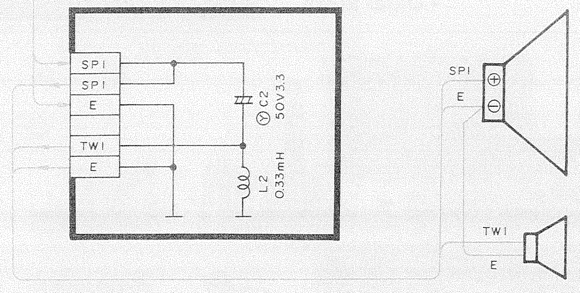
JACK 1 CIRCUIT DIAGRAM


CN2
+15
-15
E
SPC
PL ⊕
PL ⊖
F R3 1/4W10
F R2 1/4W10
+15
-15
C1 25V47
C2 25V47
R1 1K
F R4 150
D1
RL1
MB (CN105)
SAS
Power Indicator
CN5
PAO
E
CN1
SP1
E
PA (CN2)
CN4
MIC
E
AUX
E
SM
SM
Mic Amp
N C5 50V1
R9 220K
R10 220K
R11 10K
C6 100P
R12 220K
IC1
C8 100P
R14 150K
R13 10K
C4 0.047
C3 0.047
+15
-15
N C10 50V1
R15 1K
F R5 1/2W680
F R6 1/2W680
R8 4.7K
R7 680
JK1 headphones
JK4 line out
VR1 mic volume
JK2 mic
JK3 aux
+5
D4
D5
D2
D3
CN6
TXD
RXD
E
SCK
+5
EOB
+5
E
C11 0.047
IC2
R17 1K
R16 4.7K
L2
R19 68K
R18 68K
JK5 ext I/O (FD)
Serial Bus (from SAS)
MB (CN100)

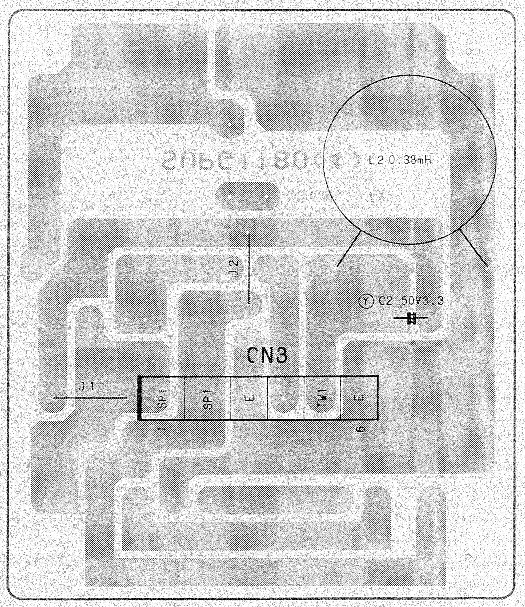
NOTES:
- IC'S
  - IC1: SVIGM5218L
  - IC2: SVIGM74LS09
- DIODES
  - D1~5: MA165TA5

NW

NETWORK CIRCUIT


SP1
SP1
E
TW1
E
Y C2 50V3.3
L2 0.33mH
SP1
E
⊕
⊖
TW1
E

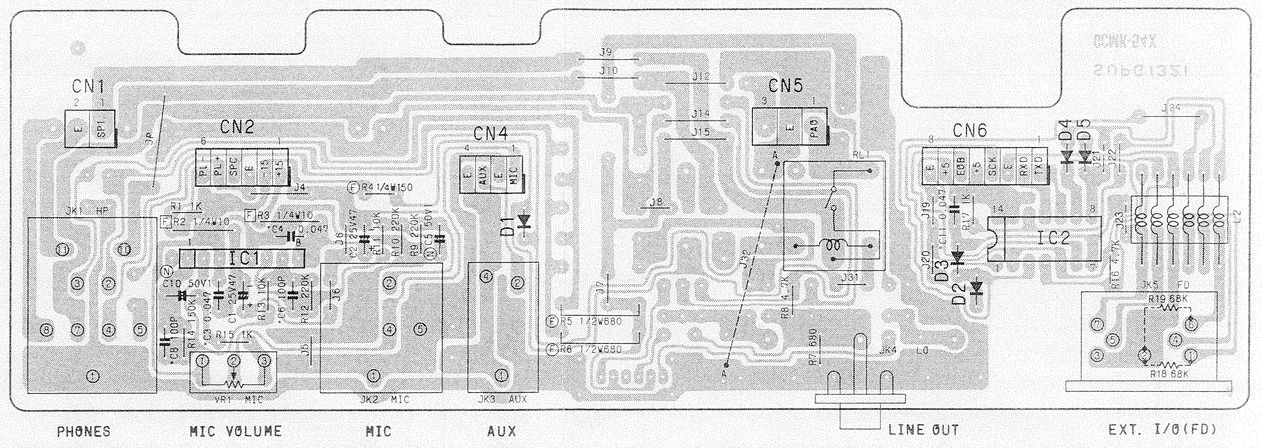
SXPG118061


L2 0.33mH
Y C2 50V3.3
CN3
SP1
SP1
E
TW1
E
J1
J2

JACK 1

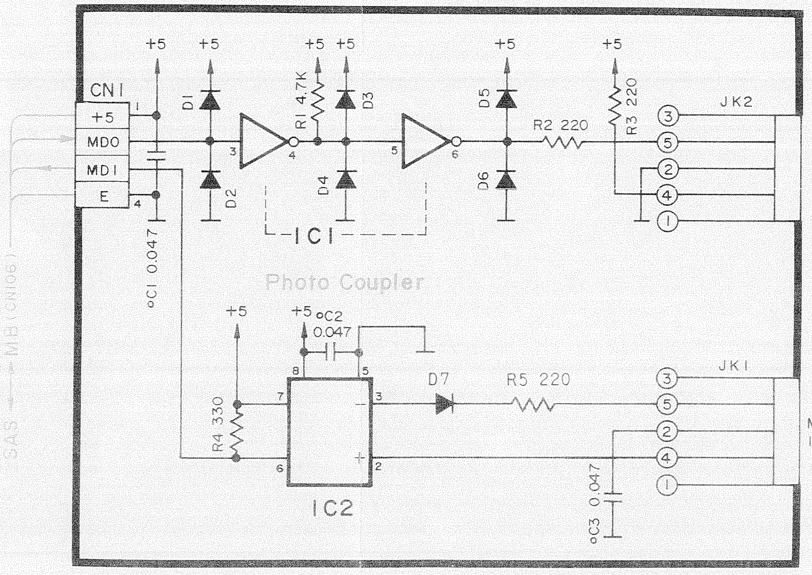
JACK 1 CIRCUIT BOARD

SXPG132111

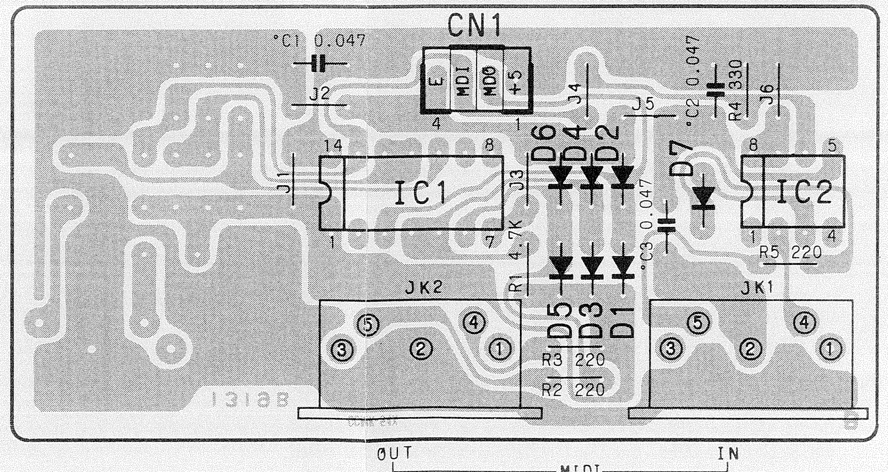

CN1
E
SP1
CN2
PL-
PL+
SPC
E
-15
+15
CN4
E
AUX
E
MIC
CN5
E
PAO
CN6
E
+5
EOB
+5
SCK
E
RXD
TXD
IC1
IC2
RL1
D1
D2
D3
D4
D5
L2
JK1 HP
VR1 MIC
JK2 MIC
JK3 AUX
JK4 LO
JK5 FD
R19 68K
R18 68K
PHONES
MIC VOLUME
MIC
AUX
LINE OUT
EXT. I/O(FD)

JACK 2

JACK 2 CIRCUIT


CN1
+5
MDO
MDI
E
SAS — MB (CN106)
C1 0.047
+5
D1
D2
R1 4.7K
D3
D4
IC1
D5
D6
R2 220
R3 220
JK2
MIDI OUT
Photo Coupler
+5
C2 0.047
R4 330
IC2
D7
R5 220
JK1
MIDI IN
C3 0.047

SXPG131911B


C1 0.047
CN1
E
MDI
MDO
+5
J2
J4
J5
J6
C2 0.047
R4 330
IC1
IC2
D6
D4
D2
D7
D5
D3
D1
C3 0.047
R1 4.7K
R5 220
R3 220
R2 220
JK2
JK1
OUT
MIDI
IN

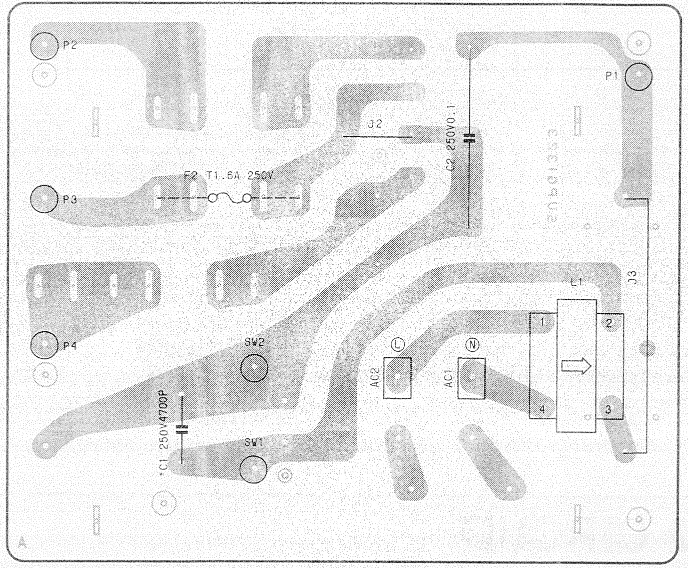
NOTES:
- IC'S
  - IC1: SVIGM74LS05
  - IC2: SVIGTLP552
- DIODES
  - D1~7: MA165TA5

AC POWER SUPPLY, POWER SUPPLY, POWER AMPLIFIER CIRCUIT BOARD

■ AC POWER SUPPLY CIRCUIT BOARD

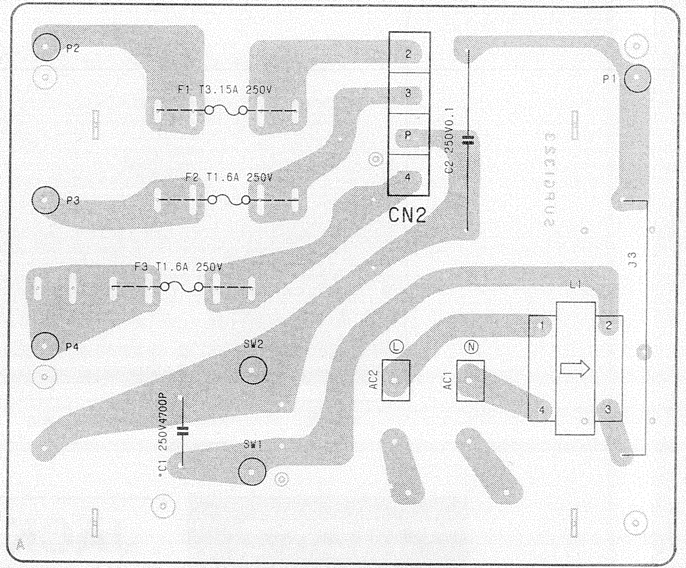
- Products for (EN), (EI), (EH), (EB), (EF), (EW), (EL), (EP)

SXPG132311


P2
P1
P3
P4
J2
F2 T1.6A 250V
C2 250V0.1
L1
J3
SW2
SW1
AC2
AC1
*C1 250V4700P

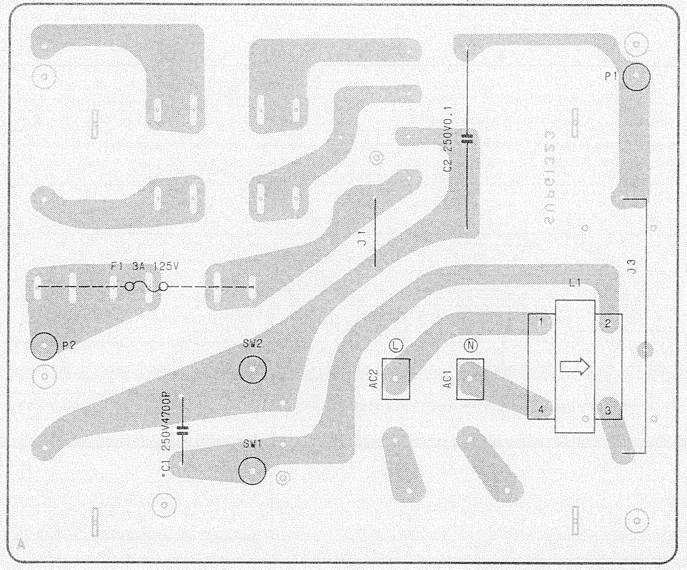
- Products for (EK), (XL), (XR), (XS), (X), (XV), (XX)

SXPG132321


P2
P1
P3
P4
F1 T3.15A 250V
F2 T1.6A 250V
F3 T1.6A 250V
CN2
C2 250V0.1
L1
J3
SW2
SW1
AC2
AC1
*C1 250V4700P

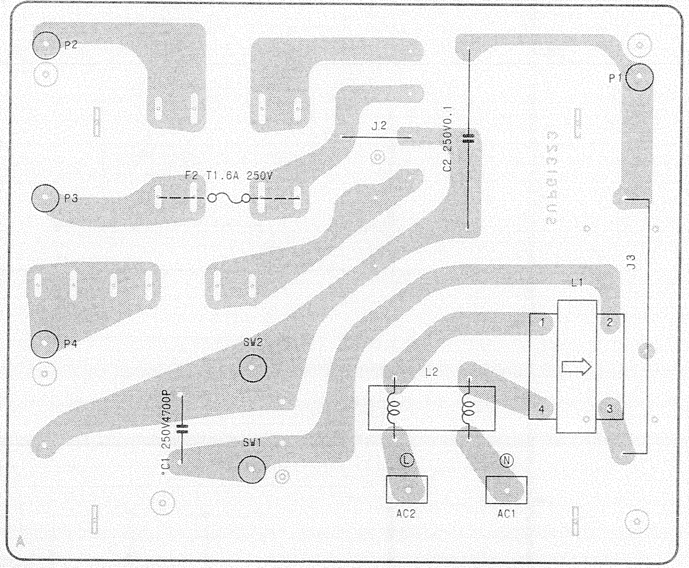
- Products for (MC), (MT)

SXPG132331


P1
P2
F1 3A 125V
C2 250V0.1
J1
J3
L1
SW2
SW1
AC2
AC1
*C1 250V4700P

- Products for (EZ)

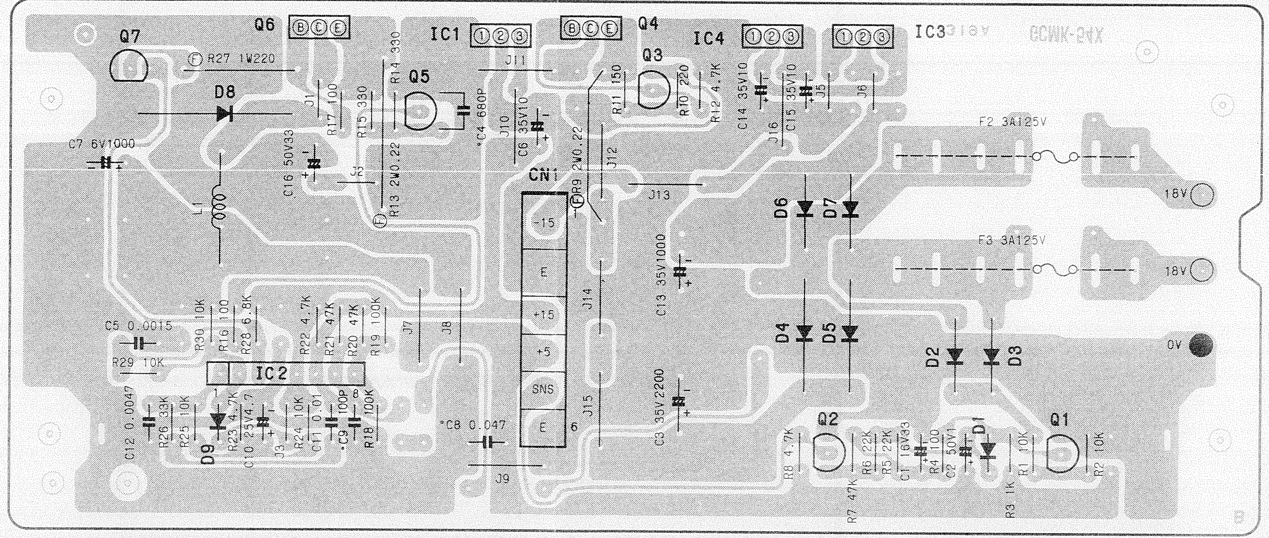
SXPG132351


P2
P1
P3
P4
J2
F2 T1.6A 250V
C2 250V0.1
J3
L1
L2
SW2
SW1
AC2
AC1
*C1 250V4700P

■ POWER SUPPLY CIRCUIT BOARD

- Products for (MC), (XT)

SXPG131921A

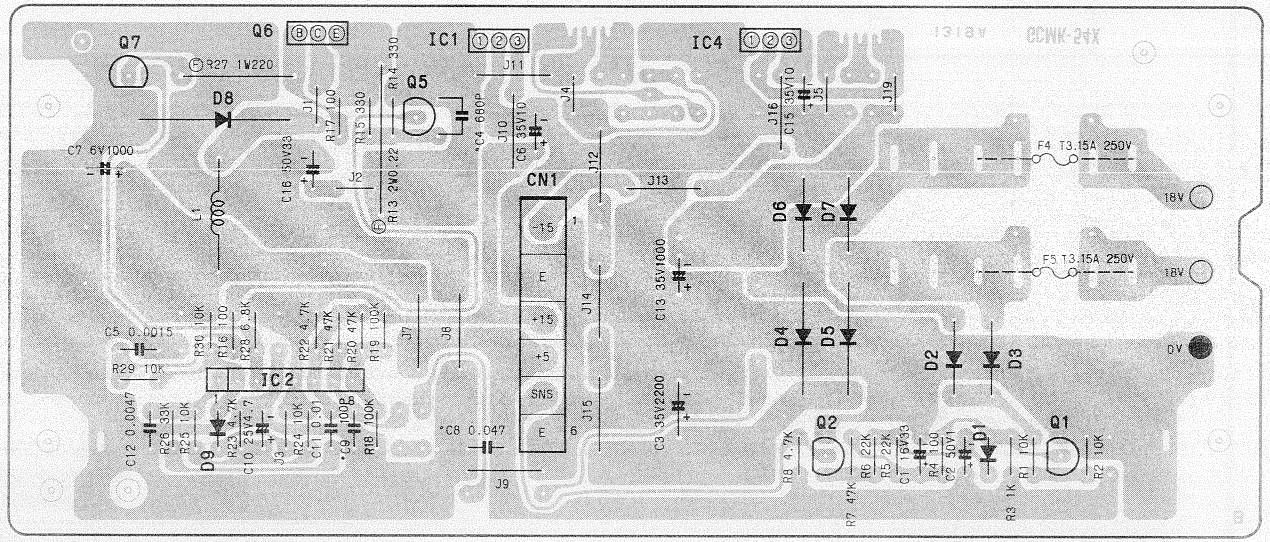

Q7
Q6
IC1
Q4
IC4
IC3
D8
Q5
Q3
R27 1W220
C7 6V1000
L1
F2 3A125V
F3 3A125V
18V
18V
0V
CN1
D6
D7
D4
D5
D2
D3
D1
Q2
Q1
IC2
D9
C5 0.0015
R29 10K
*C8 0.047
J9

- Products for (EZ)

SXPG131941A

- Other areas

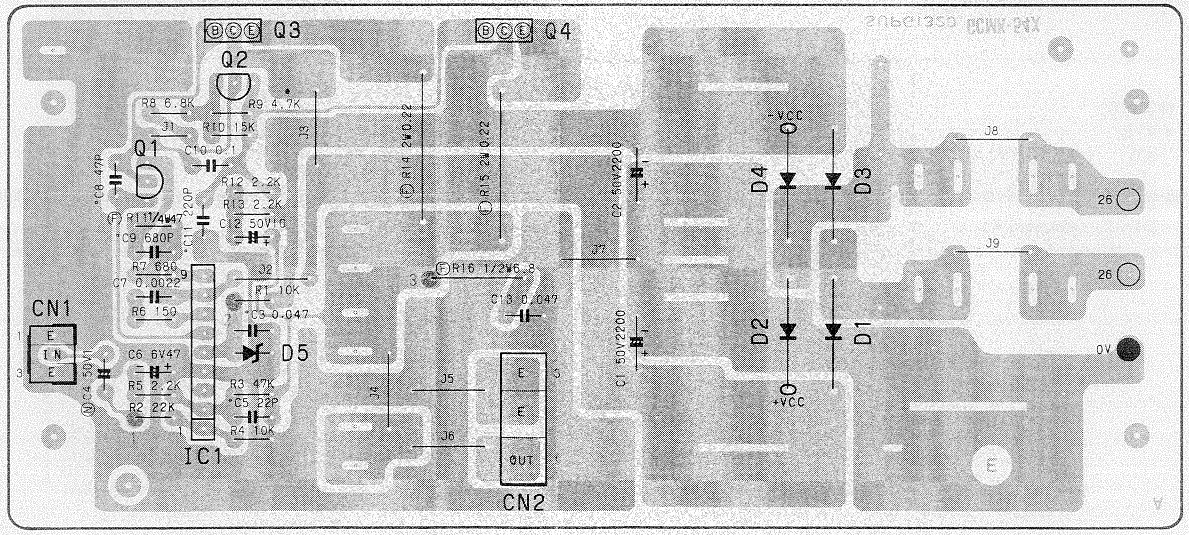
SXPG131911A


Q7
Q6
IC1
IC4
D8
Q5
R27 1W220
C7 6V1000
L1
F4 T3.15A 250V
F5 T3.15A 250V
18V
18V
0V
CN1
D6
D7
D4
D5
D2
D3
D1
Q2
Q1
IC2
D9
C5 0.0015
R29 10K
*C8 0.047
J9

■ POWER AMPLIFIER CIRCUIT BOARD

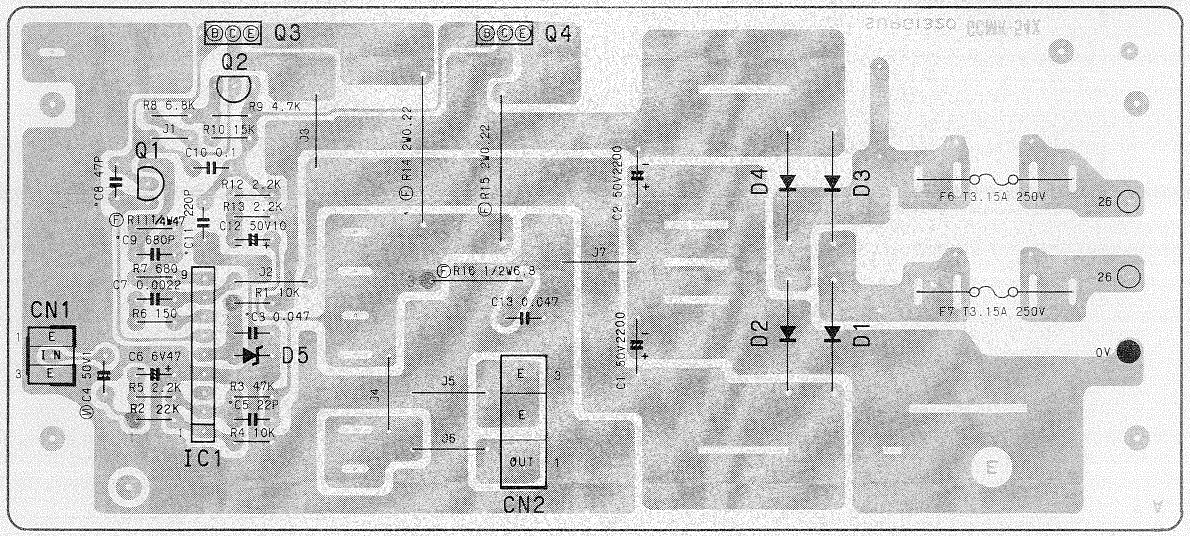
- Products for (MC), (XT)

SXPG132021


Q3
Q4
Q2
Q1
R8 6.8K
R9 4.7K
R10 15K
-VCC
+VCC
D4
D3
D2
D1
J8
J9
26
26
0V
CN1
D5
IC1
CN2
E
E
OUT

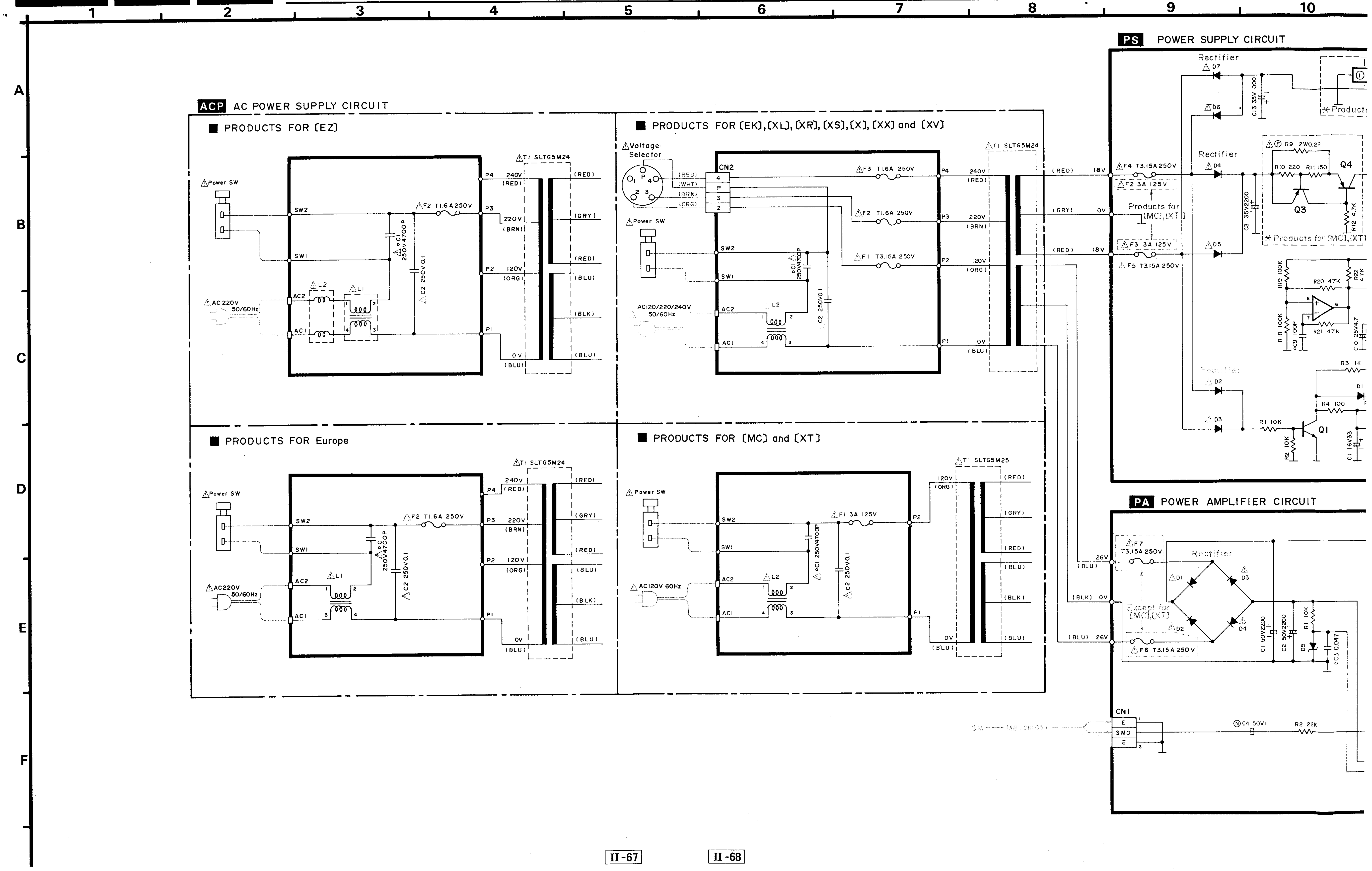
- Other areas

SXPG132011

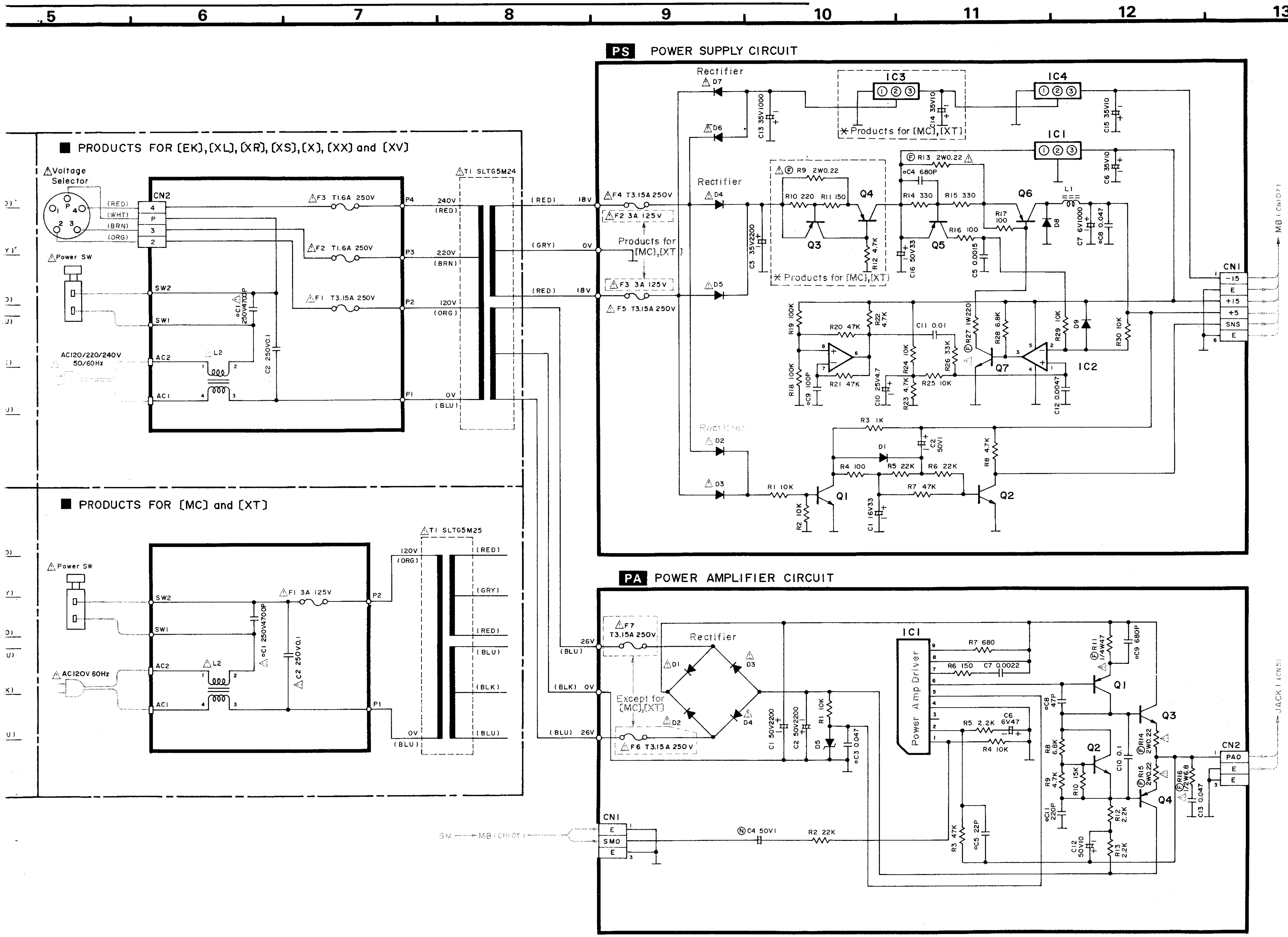

Q3
Q4
Q2
Q1
R8 6.8K
R9 4.7K
R10 15K
D4
D3
D2
D1
F6 T3.15A 250V
F7 T3.15A 250V
26
26
0V
CN1
D5
IC1
CN2
E
E
OUT

ACP **PS** **PA**

AC POWER SUPPLY, POWER SUPPLY, POWER AMPLIFIER CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
ACP AC POWER SUPPLY CIRCUIT
PRODUCTS FOR [EZ]
Power SW
SW2
SW1
AC2
AC1
L2
L1
AC 220V 50/60Hz
C1 250V4700P
C2 250V0.1
F2 T1.6A 250V
P4 240V (RED)
P3 220V (BRN)
P2 120V (ORG)
P1
0V (BLU)
T1 SLTG5M24
(RED)
(GRY)
(RED)
(BLU)
(BLK)
(BLU)
PRODUCTS FOR [EK],[XL],[XR],[XS],[X],[XX] and [XV]
Voltage Selector
CN2
(RED)
(WHT)
(BRN)
(ORG)
F3 T1.6A 250V
F2 T1.6A 250V
F1 T3.15A 250V
AC120/220/240V 50/60Hz
PRODUCTS FOR Europe
AC220V 50/60Hz
PRODUCTS FOR [MC] and [XT]
F1 3A 125V
AC120V 60Hz
T1 SLTG5M25
120V (ORG)
PS POWER SUPPLY CIRCUIT
Rectifier
D7
D6
C13 35V1000
Products
F4 T3.15A 250V
F2 3A 125V
18V
0V
Products for [MC],[XT]
F3 3A 125V
F5 T3.15A 250V
D4
D5
C3 35V2200
R9 2W0.22
R10 220
R11 150
Q4
Q3
R12 4.7K
Products for [MC],[XT]
R19 100K
R20 47K
R22 4.7K
R18 100K
C9 100P
R21 47K
C10 25V4.7
R3 1K
D2
D3
R4 100
R1 10K
Q1
R2 10K
C1 16V33
PA POWER AMPLIFIER CIRCUIT
F7 T3.15A 250V
26V (BLU)
(BLK) 0V
(BLU) 26V
Rectifier
D1
D3
D2
D4
Except for [MC],[XT]
F6 T3.15A 250V
C1 50V2200
C2 50V2200
R1 10K
D5
C3 0.047
CN1
E
SMO
E
SM — MB (CN105)
C4 50V1
R2 22K

R SUPPLY, POWER AMPLIFIER CIRCUIT DIAGRAM


5
6
7
8
9
10
11
12
13
14
PS POWER SUPPLY CIRCUIT
PRODUCTS FOR [EK], [XL], [XR], [XS], [X], [XX] and [XV]
Voltage Selector
Power SW
CN2
(RED)
(WHT)
(BRN)
(ORG)
SW2
SW1
AC2
AC1
AC120/220/240V 50/60Hz
L2
C1 250V4700P
C2 250V0.1
F3 T1.6A 250V
F2 T1.6A 250V
F1 T3.15A 250V
P4
P3
P2
P1
240V
220V
120V
0V
T1 SLTG5M24
(RED) 18V
(GRY) 0V
(RED) 18V
(BLU)
F4 T3.15A 250V
F2 3A 125V
Products for [MC], [XT]
F3 3A 125V
F5 T3.15A 250V
Rectifier
D7
D6
D4
D5
D2
D3
C13 35V1000
IC3
IC4
IC1
C14 35V10
C15 35V10
C6 35V10
* Products for [MC], [XT]
R9 2W0.22
R10 220
R11 150
Q4
Q3
R12 4.7K
C3 35V2200
R13 2W0.22
C4 680P
R14 330
R15 330
Q5
Q6
R16 100
R17 100
L1
D8
C7 6V1000
C8 0.047
C16 50V33
C5 0.0015
CN1
-15
E
+15
+5
SNS
E
MB (CN107)
R19 100K
R20 47K
R22 4.7K
C11 0.01
R27 1W220
R28 6.8K
R29 10K
D9
R30 10K
R18 100K
C9 100P
R21 47K
C10 25V4.7
R23 4.7K
R24 10K
R25 10K
R26 33K
Q7
IC2
C12 0.0047
R3 1K
D1
C2 50V1
R4 100
R5 22K
R6 22K
R8 4.7K
R7 47K
R1 10K
R2 10K
C1 16V33
Q1
Q2
PRODUCTS FOR [MC] and [XT]
T1 SLTG5M25
F1 3A 125V
C1 250V4700P
C2 250V0.1
AC120V 60Hz
(ORG)
(GRY)
(BLK)
PA POWER AMPLIFIER CIRCUIT
F7 T3.15A 250V
26V (BLU)
(BLK) 0V
(BLU) 26V
Except for [MC], [XT]
F6 T3.15A 250V
D1
D2
D3
D4
C1 50V2200
C2 50V2200
R1 10K
D5
C3 0.047
IC1
Power Amp Driver
R7 680
R6 150
C7 0.0022
R5 2.2K
C6 6V47
R4 10K
R11 1/4W47
C9 680P
C8 47P
R8 6.8K
R9 4.7K
R10 15K
C10 0.1
R14 2W0.22
R15 2W0.22
R16 1/2W6.8
C13 0.047
C11 220P
R12 2.2K
R13 2.2K
C12 50V10
Q1
Q2
Q3
Q4
CN2
PAO
E
JACK1 (CN5)
CN1
SMO
C4 50V1
R2 22K
R3 47K
C5 22P
SM MB (CN105)

PS

NOTES:

- IC'S

IC1:	AN7815F
IC2:	SVIGM51207L
IC3 **MC** **XT**:	AN7918H
IC4:	AN7915F

- TRANSISTORS

Q1, 2, 7:	2SC2320LFG
Q3 **MC** **XT**:	2SA933STRS
Q4 **MC** **XT**:	2SB951A
Q5:	2SA933STRS
Q6:	2SB953A

- DIODES

D1, 9:	MA165TA5
D2, 3, 6, 7:	SVDGSM1A02LF
D4, 5:	SVDS2V20
D8:	SVDGERC9102

- FUSES

F2, 3 **MC** **XT**:	XBA1F30NU14
F4, 5:	XBA2C31TB0

PA

NOTES:

- IC

IC1:	AN7060

- TRANSISTORS

Q1:	2SA1123R
Q2:	2SC1815GR
Q3:	2SD1277A
Q4:	2SB951A

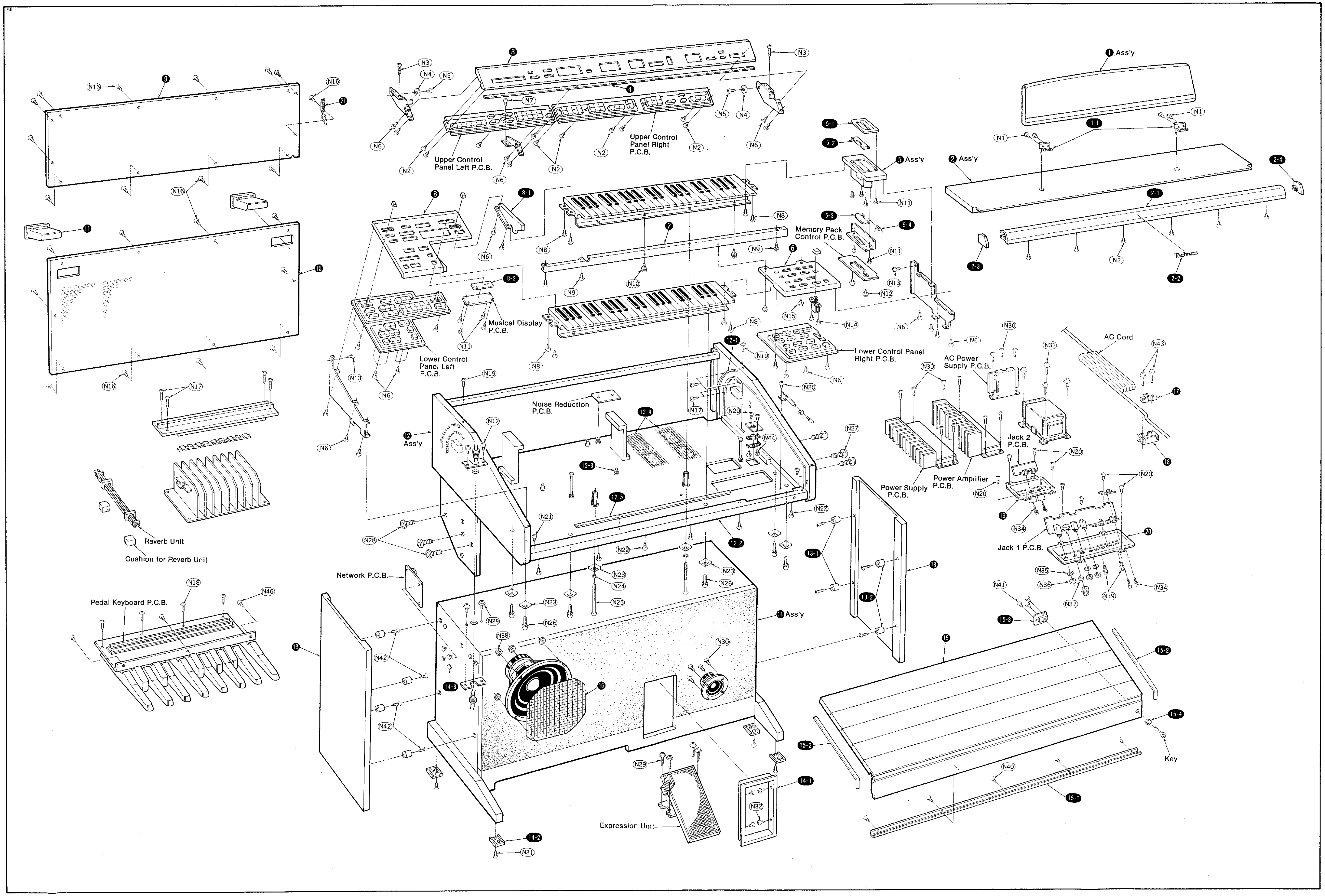
- DIODES

D1～4:	SVDS2V20
D5:	MA1062

- FUSES (Except for MC, XT)

F6, 7:	XBA2C31TB0

EXPLODED VIEWS OF CABINET (SX-EX50)



1 Ass'y
1-1
2 Ass'y
2-1
2-2
2-3
2-4
Technics
3
4
5 Ass'y
5-1
5-2
5-3
5-4
6
7
8
8-1
8-2
9
10
11
12 Ass'y
12-1
12-2
12-3
12-4
12-5
13
13-1
13-2
14 Ass'y
14-1
14-2
14-3
15
15-1
15-2
15-3
15-4
16
17
18
19
20
21
N1
N2
N3
N4
N5
N6
N7
N8
N9
N10
N11
N12
N13
N14
N15
N16
N17
N18
N19
N20
N21
N22
N23
N24
N25
N26
N27
N28
N29
N30
N31
N32
N33
N34
N35
N36
N37
N38
N39
N40
N41
N42
N43
N44
N46
Upper Control Panel Left P.C.B.
Upper Control Panel Right P.C.B.
Memory Pack Control P.C.B.
Musical Display P.C.B.
Lower Control Panel Left P.C.B.
Lower Control Panel Right P.C.B.
Noise Reduction P.C.B.
AC Power Supply P.C.B.
AC Cord
Jack 2 P.C.B.
Power Amplifier P.C.B.
Power Supply P.C.B.
Jack 1 P.C.B.
Reverb Unit
Cushion for Reverb Unit
Pedal Keyboard P.C.B.
Network P.C.B.
Expression Unit
Key

REPLA

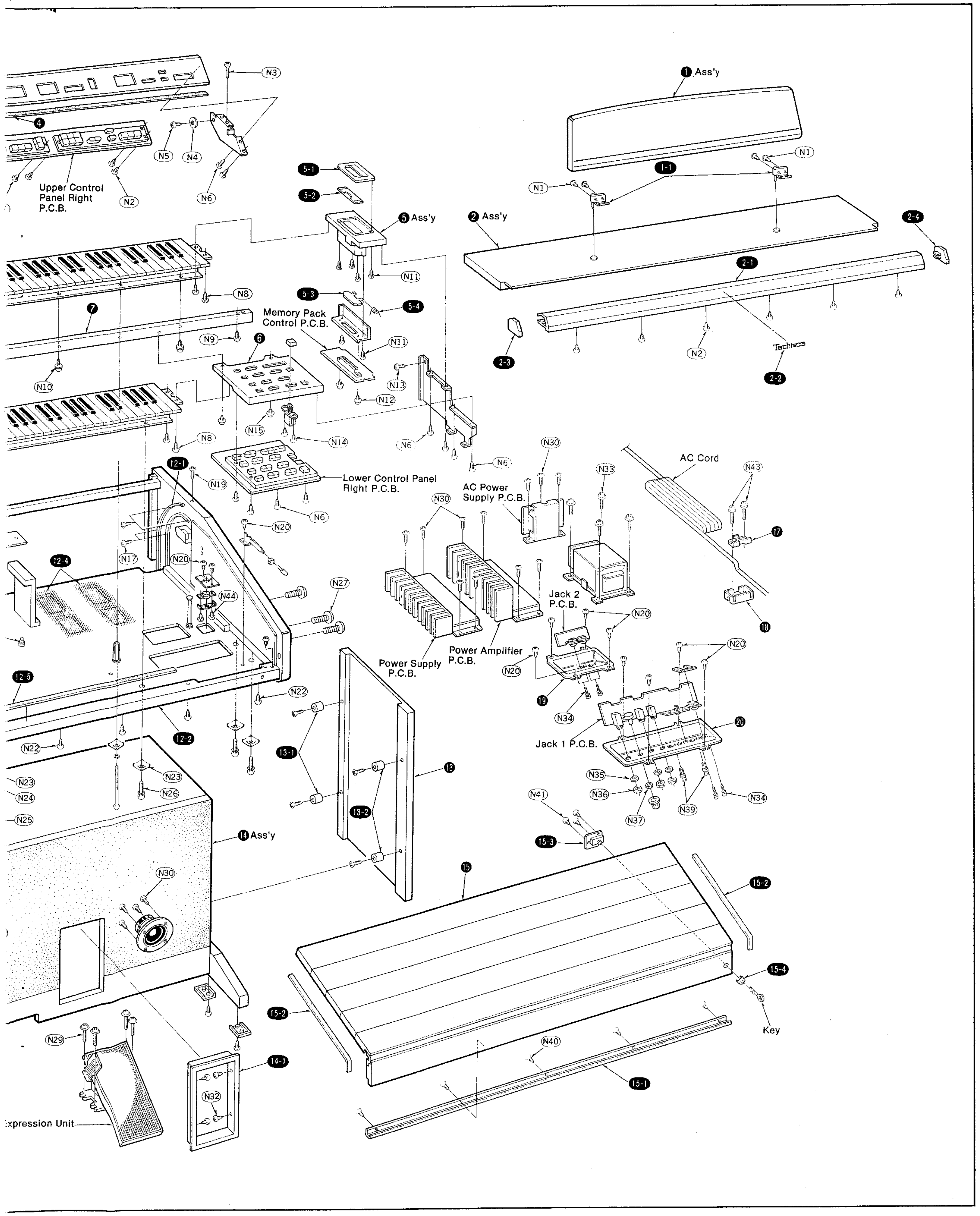
Notes:

1. ○ mark are n
2. For part No. w
   order.

■ MECHANIC

● SX-EX50-K...

Ref. No.		
○	1	
	1-1	
○	2	
○	2-1	
	2-2	
○	2-3	
○	2-4	
○	3	
	4	
	5	
	5-1	
	5-2	
	5-3	
	5-4	
○	6	
○	7	
○	8	
	8-1	
	8-2	
○	9	
○	10	
	11	
○	12	
○	12	EZ
	12-1	
○	12-2	
	12-3	
	12-4	
○	12-5	
○	13	
	13-1	
	13-2	
○	14	
	14-1	
○	14-2	
	14-3	
○	15	
○	15-1	
	15-2	
	15-3	
	15-4	
	16	
	17	
	18	
	19	
	20	
	21	
○		


N3
1 Ass'y
4
N5
N4
N2
N6
Upper Control Panel Right P.C.B.
5-1
5-2
5 Ass'y
2 Ass'y
1-1
N1
2-4
2-1
N8
7
Memory Pack Control P.C.B.
5-3
5-4
N11
N9
6
N10
2-3
Technics
2-2
N13
N12
N15
N14
N30
12-1
N19
Lower Control Panel Right P.C.B.
AC Power Supply P.C.B.
N33
AC Cord
N43
N20
17
12-4
N17
N44
N27
Jack 2 P.C.B.
18
Power Amplifier P.C.B.
Power Supply P.C.B.
12-5
N22
19
N34
20
Jack 1 P.C.B.
12-2
13-1
13
N23
N26
N24
N25
N35
N36
N41
N37
N39
13-2
14 Ass'y
15-3
15
15-2
15-4
Key
N29
N40
14-1
15-1
N32
Expression Unit

REPLACEMENT PARTS LIST......Mechanical Parts

Notes:

1. ○ mark are new parts.
2. For part No. with area mark, check the area when placing an order.
3. Cabinet Colour
   - SX-EX50 .... Woody face
   - SX-EX50-K .... Black face
   - SX-EX50L-K .... Black face

■ MECHANICAL PARTS

● SX-EX50-K...Black face cabinet

	Ref. No.		Part No.	Description	Per/Set
	CABINET PARTS (SX-EX50-K)				
○	1		SKGG2M20A	Music Rack Ass'y	1
	1-1		SBLG110C	Stay	2
○	2		SKPG840A	Top Cover Ass'y	1
○	2-1		SGXG2100A	Ornament	1
	2-2		SGBG100A	Technics Badge	1
○	2-3		SHRG8270A	Cap, Left Side	1
○	2-4		SHRG8280A	Cap, Right Side	1
○	3		SGWG1720A	Control Panel	1
	4		SHSG1890A	Felt	1
	5		SYWG5111D	Upper Right End Cover Panel	1
	5-1		SKEG1090D	Receptacle	1
	5-2		SKEG1100C	Slide Cover for Memory	1
	5-3		SKEG1111C	Dust Cover Pack	1
	5-4		SUSG300A	Spring	1
○	6		SGWG3150N	Lower Right End Cover Panel	1
○	7		SGXG2140A	Ornament Panel, for Lower Keyboard	1
○	8		SYWG8120A	Left End Cover Panel	1
	8-1		SGEG180C	Ornament	1
	8-2		SKEG1190A	Musical Display Panel	1
○	9		SKZG7550A	Rear Board, Upper Side	1
○	10		SYUG2100B	Rear Board, Lower Side	1
	11		SKHG5	Handle	2
○	12		SKMG1300A	Cabinet (Upper Unit)	1
○	12	EZ	SKMG1302A	Cabinet (Upper Unit), [EZ] only	1
	12-1		SKEG7330A	Sliding Cover Guide	2
○	12-2		SGXG2120A	Front Panel	1
	12-3		SHRG9200A	P.C.B. Holder	6
	12-4		SGMG180A	Net	2
○	12-5		SHSG2870A	Felt	1
○	13		SKZGC300A	Side Panel	2
	13-1		SHGG9040A	Catch Rubber (brown)	4
	13-2		SHGG9040B	Catch Rubber (black)	4
○	14		SKMG1310A	Cabinet (Lower Unit)	1
	14-1		SGXG1100K	Ornament, for Expression	1
○	14-2		SHRG2080C	Foot	4
	14-3		SHRG9200A	P.C.B. Holder	4
○	15		SKZG8320A	Sliding Cover	1
○	15-1		SGXG414B	Ornament	1
	15-2		SHSG1550A	Felt	2
	15-3		SBEG30A	Lock	1
	15-4		SBEG40A	Staple	1
	16		SGMG3010A	Net, for Speaker	1
	17		SHRG1120A	AC Cord Clamper (A)	1
	18		SHRG1110A	AC Cord Clamper (B)	1
	19		SMKG2800A	Jack 2 Panel	1
	20		SMKG2670A	Jack 1 Panel	1
	21		SHRG1030A	Cord Band	1
	BENCH				
○			SZ-CM14C		1

● SX-EX50...Woody face cabinet

	Ref. No.		Part No.	Description	Per/Set
	CABINET PARTS (SX-EX50)				
○	1		SKGG2N10A	Music Rack Ass'y	1
	1-1		SBLG110A	Stay	2
○	2		SKPG840B	Top Cover Ass'y	1
○	2-1		SGXG2100B	Ornament	1
	2-2		SGBG100A	Technics Badge	1
○	2-3		SHRG8270B	Cap, Left Side	1
○	2-4		SHRG8280B	Cap, Right Side	1
○	3		SGWG1720D	Control Panel	1
	4		SHSG1890A	Felt	1
○	5		SYWG5111F	Upper Right End Cover Panel	1
	5-1		SKEG1090A	Receptacle	1
	5-2		SKEG1100A	Slide Cover for Memory	1
	5-3		SKEG1111A	Dust Cover Pack	1
	5-4		SUSG300A	Spring	1
○	6		SGWG3150P	Lower Right End Cover Panel	1
○	7		SGXG2140A	Ornament Panel, for Lower Keyboard	1
○	8		SYWG8120B	Left End Cover Panel	1
	8-1		SGEG180A	Ornament	1
	8-2		SKEG1190A	Musical Display Panel	1
○	9		SKZG7550A	Rear Board, Upper Side	1
○	10		SYUG2100B	Rear Board, Lower Side	1
	11		SKHG5	Handle	2
○	12		SKMG1300B	Cabinet (Upper Unit)	1
○	12	EZ	SKMG1302B	Cabinet (Upper Unit), [EZ] only	1
	12-1		SKEG7330A	Sliding Cover Guide	2
○	12-2		SGXG2120C	Front Panel	1
	12-3		SHRG9200A	P.C.B. Holder	6
	12-4		SGMG180A	Net	2
○	12-5		SHSG2870A	Felt	1
○	13		SKZGC300B	Side Panel	2
	13-1		SHGG9040A	Catch Rubber (brown)	4
	13-2		SHGG9040B	Catch Rubber (black)	4
○	14		SKMG1310B	Cabinet (Lower Unit)	1
	14-1		SGXG1100A	Ornament, for Expression	1
○	14-2		SHRG2080A	Foot	4
	14-3		SHRG9200A	P.C.B. Holder	4
○	15		SKZG8320B	Sliding Cover	1
○	15-1		SGXG414A	Ornament	1
	15-2		SHSG1550A	Felt	2
	15-3		SBEG30A	Lock	1
	15-4		SBEG40A	Staple	1
	16		SGMG3010A	Net, for Speaker	1
	17		SHRG1120A	AC Cord Clamper (A)	1
	18		SHRG1110A	AC Cord Clamper (B)	1
	19		SMKG2800A	Jack 2 Panel	1
	20		SMKG2670A	Jack 1 Panel	1
	21		SHRG1030A	Cord Band	1
	BENCH				
○			SZ-CM14D		1

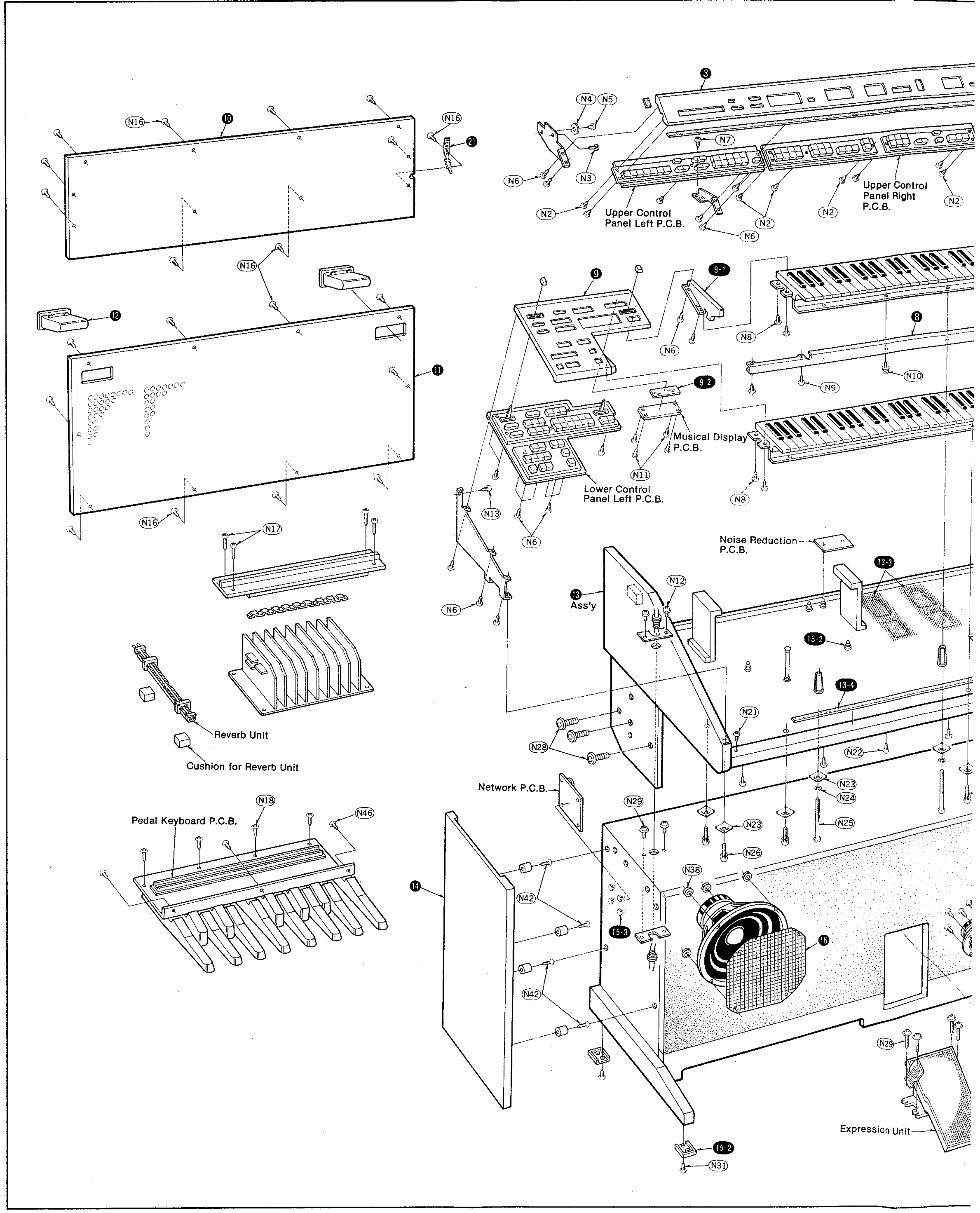
● SX-EX50L-K...Black face cabinet

	Ref. No.	Part No.	Description	Per/Set
CABINET PARTS (SX-EX50L-K)				
○	1	SKGG2M20A	Music Rack Ass'y	1
	1-1	SBLG110C	Stay	2
○	2	SKPG850A	Top Cover Ass'y	1
○	2-1	SGXG2110A	Ornament	1
	2-2	SGBS21	Technics Badge	1
○	2-3	SHSG2810A	Felt	1
○	3	SGWG1720C	Control Panel	1
○	4	SHSG3020A	Felt	2
	5	SHSG1890A	Felt	1
	6	SYWG5111D	Upper Right End Cover Panel	1
	6-1	SKEG1090D	Receptacle	1
	6-2	SKEG1100C	Slide Cover for Memory	1
	6-3	SKEG1111C	Dust Cover Pack	1
	6-4	SUSG300A	Spring	1
○	7	SGWG3150N	Lower Right End Cover Panel	1
○	8	SGXG2140A	Ornament Panel, for Lower Keyboard	1
○	9	SYWG8120A	Left End Cover Panel	1
	9-1	SGEG180C	Ornament	1
	9-2	SKEG1190A	Musical Display Panel	1
○	10	SKZG7560A	Rear Board, Upper Side	1
○	11	SYUG2110B	Rear Board, Lower Side	1
	12	SKHG5	Handle	2
○	13	SKMG1320A	Cabinet (Upper Unit)	1
○	13 EZ	SKMG1321A	Cabinet (Upper Unit), [EZ] only	1
○	13-1	SGXG2130A	Front Panel	1
	13-2	SHRG9200A	P.C.B. Holder	6
	13-3	SGMG180A	Net	2
○	13-4	SHSG2870A	Felt	1
○	14	SKZGC320A	Side Panel	2
	14-1	SHGG9040A	Catch Rubber (brown)	4
	14-2	SHGG9040B	Catch Rubber (black)	4
○	15	SKMG1330A	Cabinet (Lower Unit)	1
	15-1	SGXG1100K	Ornament, for Expression	1
○	15-2	SHRG2040C	Foot	4
	15-3	SHRG9200A	P.C.B. Holder	4
	16	SGMG3010A	Net, for Speaker	1
	17	SHRG1120A	AC Cord Clamper (A)	1
	18	SHRG1110A	AC Cord Clamper (B)	1
	19	SMKG2800A	Jack 2 Panel	1
	20	SMKG2670A	Jack 1 Panel	1
	21	SHRG1030A	Cord Band	1
BENCH				
○		SZ-CM14C		1

● SX-EX50-K, SX-EX50, SX-EX50L-K

	Ref. No.	Part No.	Description	Per/Set
SCREWS & WASHERS				
	N1	XTW3+10AFZ	Screw	4
	N1 EX50	XTW3+10AFVC	Screw, SX-EX50 only	.4
	N2	XTB3+12A	Screw	16
	N3	XTT4+12AFR	Screw	2
	N4	XWG3×13	Washer	2
	N5	XTB35+14A	Screw	2
	N6	XTB4+12A	Screw	28
	N7	XTB35+10AFR	Screw	1
	N8	XTT4+14AFVC	Screw	8
	N9	XTT4+10A	Screw	3
	N10	XYN5+C10S	Screw, with Washer	2
	N11	XTV3+10G	Screw	10
	N12	XYN3+F14S	Screw, with Washer	4
	N13	XTB35+20AFZ	Screw	2
	N14	SNEG740A	Screw	2
	N15	XYN4+F10S	Screw, with Washer	2
	N16	XTT4+16AFVC	Screw	22
	N17	XTB35+20A	Screw	14
	N18	XTT4+14A	Screw	4
	N19	XTT4+30A	Screw	2
	N20	XTB35+10A	Screw	11
	N21	XTB3+8BFVC	Screw	2
	N22	XTT35+10AFVC	Screw	6
	N23	SHEG150A	Washer	8
	N24	XWA5B	Washer	2
	N25	XSN5+85S	Screw	2
	N26	XYN5+C25S	Screw, with Washer	6
	N27	SNEG410F	Bolt (black)	2
	N28	SNEG410B	Bolt (red)	4
	N29	XYN4+F20FZS	Screw, with Washer	6
	N30	XTT4+12A	Screw	15
	N31	XTB35+25A	Screw	4
	N32	SNEG1320B	Screw	4
	N33	XYN4+F14S	Screw, with Washer	4
	N34	XYN3+K10FZS	Screw, with Washer	6
	N35	SNEG770A	Washer	3
	N36	XNS12FZ	Nut	3
	N37	SNE4021-1	Nut	1
	N38	SNE499-1	Nut	4
	N39	SHR401-1	Nylon Latch	2
	N40	XTS3+10AFVC	Screw	5
	N41	XTB3+10A	Screw	3
	N42	XTB3+14A	Screw	8
	N43	XYN3+F20S	Screw, with Washer	2
	N44	XTV3+8B	Screw	2
	N45	XTC4+20AFZ	Screw	2
	N46	XTB4+10A	Screw	3
ASSEMBLY PARTS				
		SXVG5020C	Expression Unit	1
		SJUG25005N	Reverb Unit	1
		SHRG550	Cushion, for Reverb Unit	2
ACCESSORIES				
	EX50	SBEG60A	Key, SX-EX50 only	1
		SBEG20A	Hexagonal Rod Wrench	1
INSTRUCTION BOOK				
○		SQFGA340	Instruction Book	1
○		SQFGA220	Instruction Book, [EN][EL] only	1
○		SQFGA320	Instruction Book, [MC][EK][EP][XT][XV][X] [XX][XL][XR][XS] only	1

EXPLODED VIEWS OF CABINET (SX-EX50L)



3
N4
N5
N16
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N16
21
N7
N6
N3
Upper Control Panel Left P.C.B.
N2
N6
N2
N2
Upper Control Panel Right P.C.B.
N2
N16
12
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9-1
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N6
N8
N10
N9
9-2
Musical Display P.C.B.
N11
Lower Control Panel Left P.C.B.
N13
N6
N8
N16
N17
Noise Reduction P.C.B.
13-3
N12
13 Ass'y
N6
13-2
13-4
N21
Reverb Unit
Cushion for Reverb Unit
N28
N22
Network P.C.B.
N23
N24
N29
N25
N18
N46
Pedal Keyboard P.C.B.
N23
N26
N38
14
N42
15-3
16
N42
N29
Expression Unit
15-2
N31

er/Set
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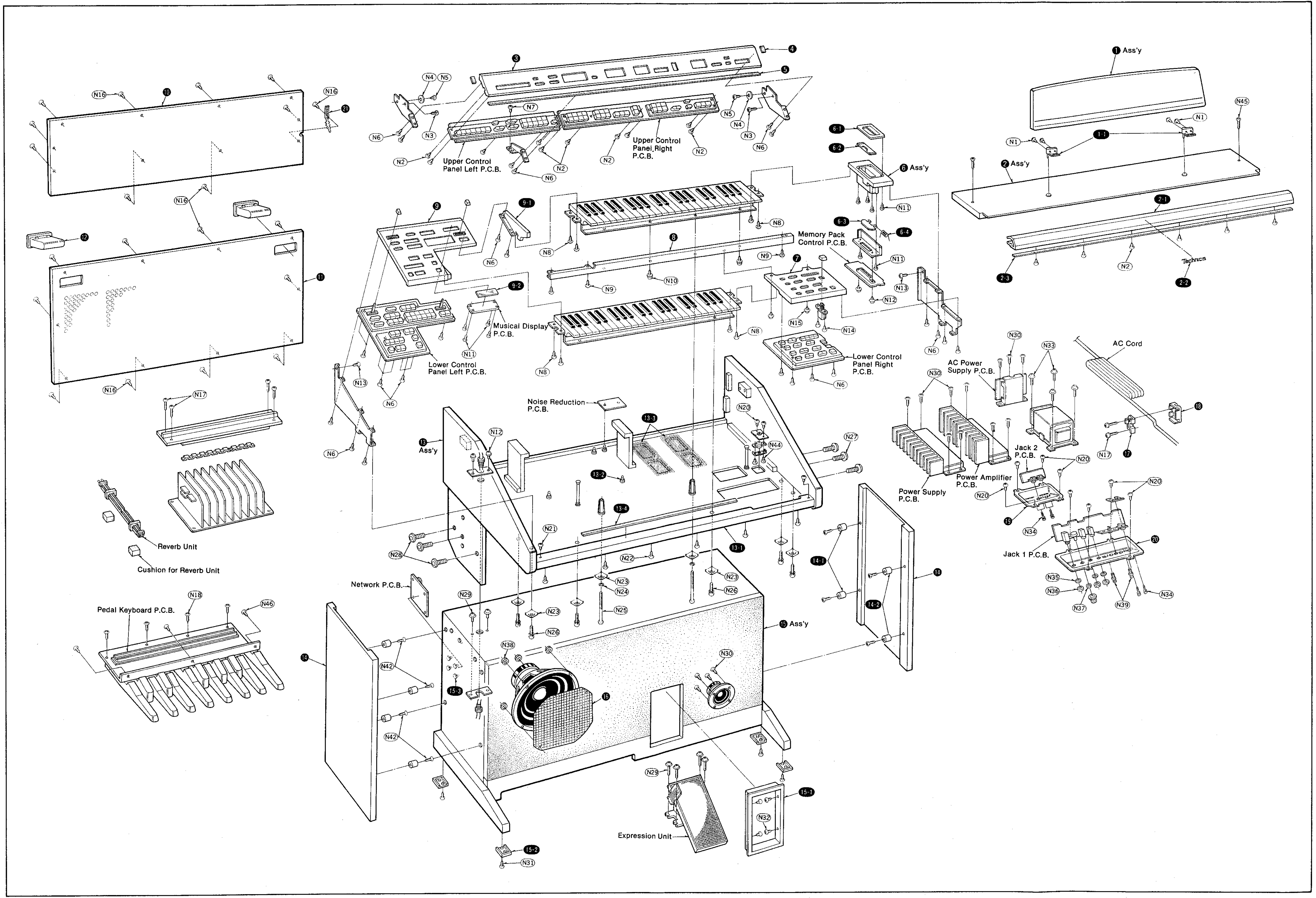
EXPLODED VIEWS OF CABINET (SX-EX50L)


1 Ass'y
1-1
2 Ass'y
2-1
2-2
2-3
Technics
3
4
5
6 Ass'y
6-1
6-2
6-3
6-4
7
8
9
9-1
9-2
10
11
12
13 Ass'y
13-1
13-2
13-3
13-4
14
14-1
14-2
15 Ass'y
15-1
15-2
15-3
16
17
18
19
20
21
Upper Control Panel Left P.C.B.
Upper Control Panel Right P.C.B.
Memory Pack Control P.C.B.
Musical Display P.C.B.
Lower Control Panel Left P.C.B.
Lower Control Panel Right P.C.B.
Noise Reduction P.C.B.
AC Power Supply P.C.B.
AC Cord
Power Supply P.C.B.
Power Amplifier P.C.B.
Jack 2 P.C.B.
Jack 1 P.C.B.
Reverb Unit
Cushion for Reverb Unit
Pedal Keyboard P.C.B.
Network P.C.B.
Expression Unit
N1
N2
N3
N4
N5
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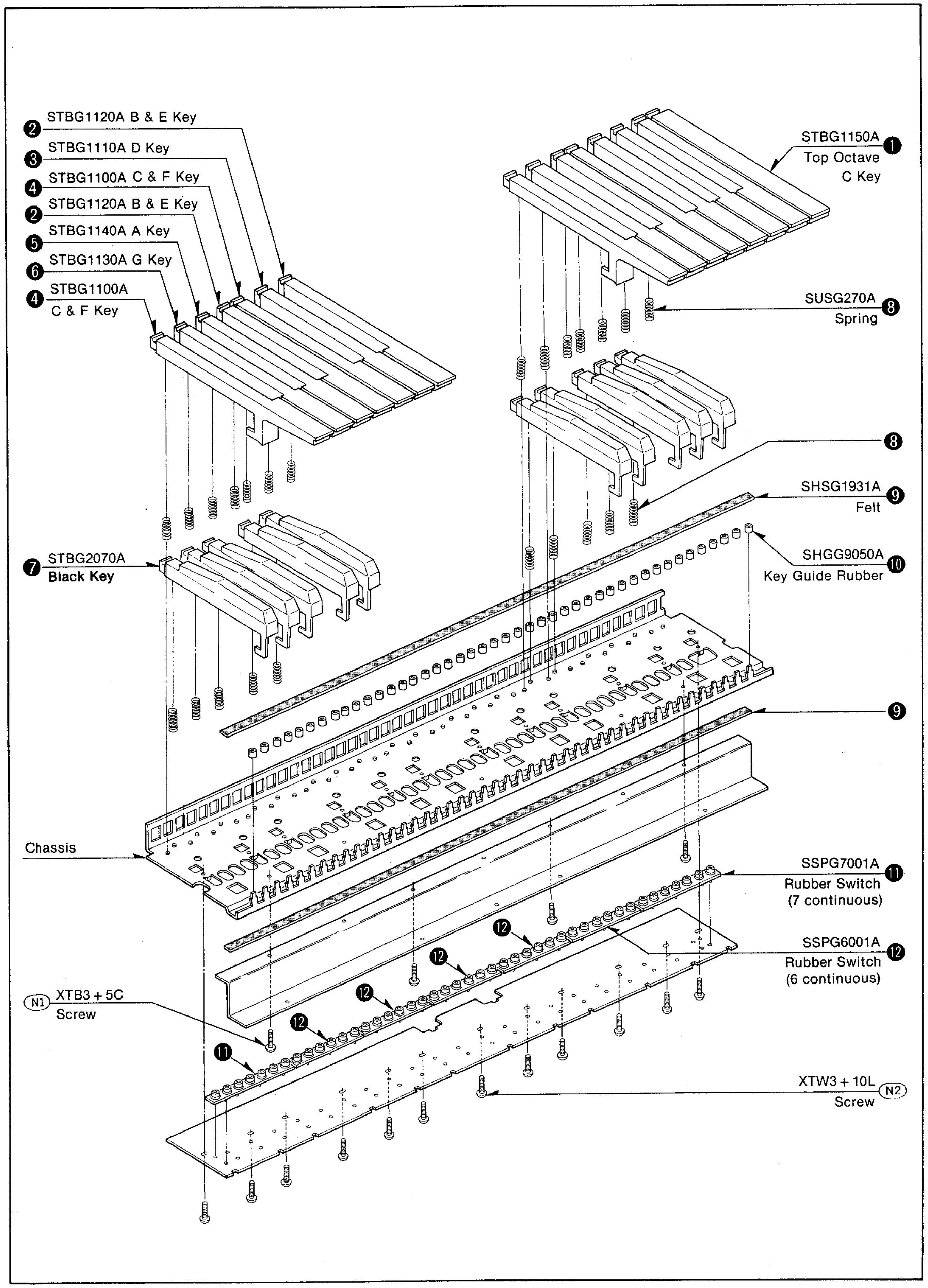
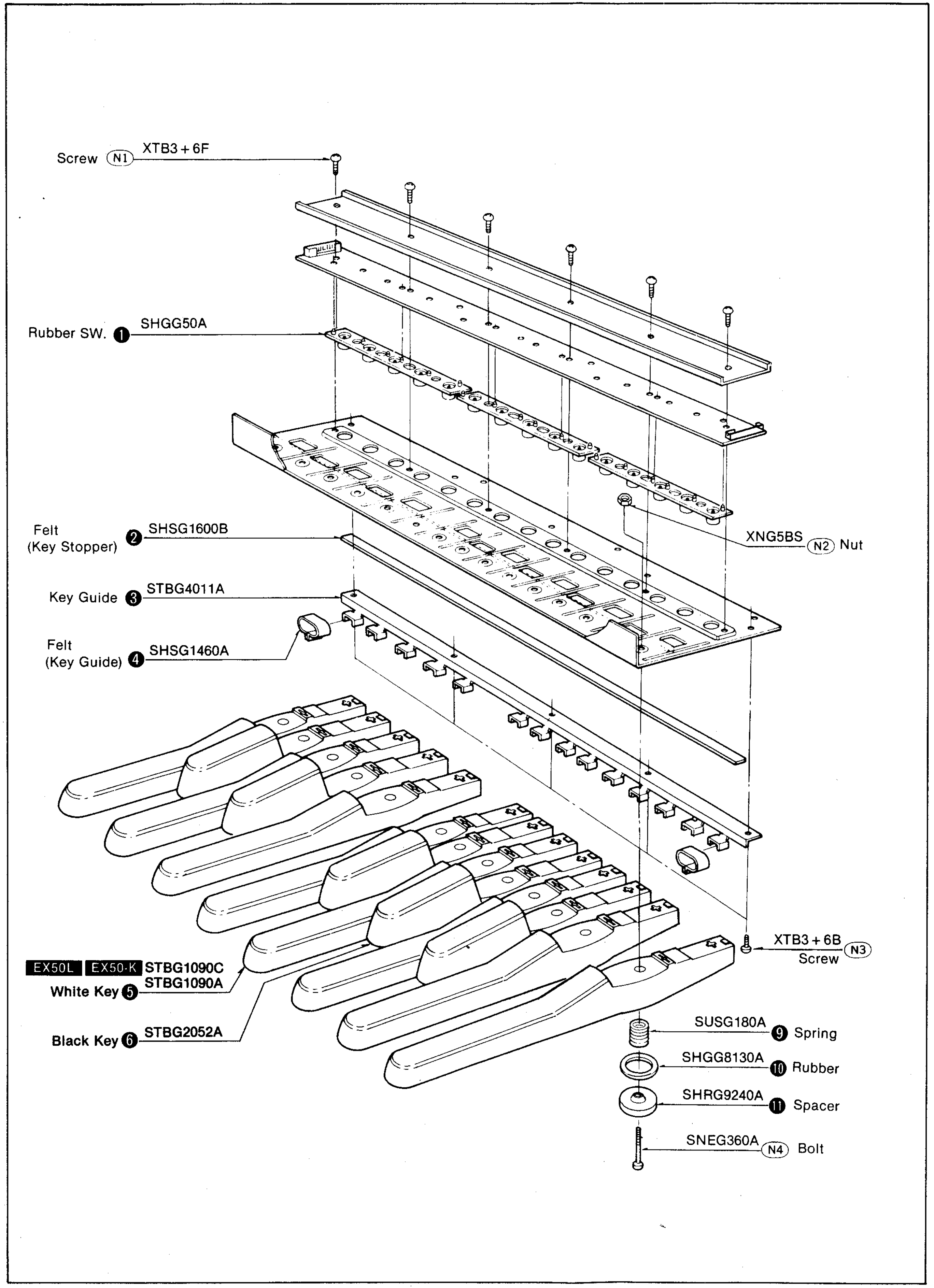
N46

EXPLODED VIEWS OF MANUAL KEYBOARD


❷ STBG1120A B & E Key
❸ STBG1110A D Key
❹ STBG1100A C & F Key
❷ STBG1120A B & E Key
❺ STBG1140A A Key
❻ STBG1130A G Key
❹ STBG1100A C & F Key
STBG1150A ❶ Top Octave C Key
SUSG270A ❽ Spring
❽
SHSG1931A ❾ Felt
❼ STBG2070A Black Key
SHGG9050A ❿ Key Guide Rubber
❾
Chassis
SSPG7001A ⓫ Rubber Switch (7 continuous)
SSPG6001A ⓬ Rubber Switch (6 continuous)
⓬
⓬
⓬
⓬
⓫
(N1) XTB3+5C Screw
XTW3+10L (N2) Screw

EXPLODED VIEWS OF PEDAL KEYBOARD


Screw (N1) XTB3+6F
Rubber SW. ❶ SHGG50A
Felt (Key Stopper) ❷ SHSG1600B
XNG5BS (N2) Nut
Key Guide ❸ STBG4011A
Felt (Key Guide) ❹ SHSG1460A
EX50L EX50-K STBG1090C STBG1090A
White Key ❺
Black Key ❻ STBG2052A
XTB3+6B (N3) Screw
SUSG180A ❾ Spring
SHGG8130A ❿ Rubber
SHRG9240A ⓫ Spacer
SNEG360A (N4) Bolt

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N1
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○ 5 EX50-
6 EX50L-
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N3
N4

Ref. No.
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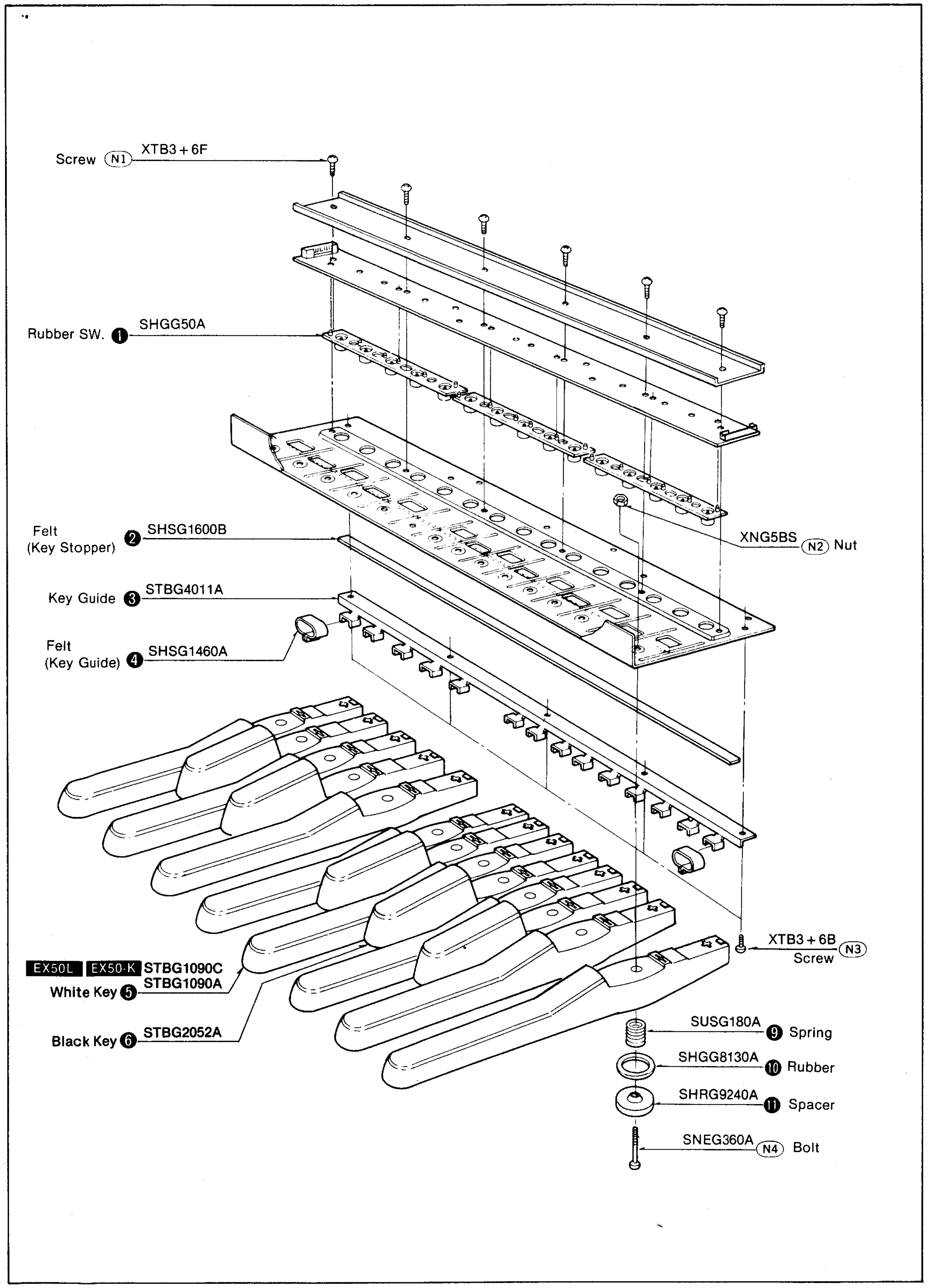
EXPLODED VIEWS OF PEDAL KEYBOARD



Ref. No.	Part No.	Description	Per/Set
		MANUAL KEYBOARD	
1	STBG1150A	White Key (Top Octave C Key)	1
2	STBG1120A	White Key (B & E Key)	7
3	STBG1110A	White Key (D Key)	3
4	STBG1100A	White Key (C & F Key)	7
5	STBG1140A	White Key (A Key)	4
6	STBG1130A	White Key (G Key)	4
7	STBG2070A	Black Key	18
8	SUSG270A	Spring	44
9	SHSG1931A	Felt	2
10	SHGG9050A	Key Guide Rubber	44
11	SSPG7001A	Rubber Switch (7 continuous)	2
12	SSPG6001A	Rubber Switch (6 continuous)	5
N1	XTB3+5C	Screw	5
N2	XTW3+10L	Screw	12
		PEDAL KEYBOARD	
1	SHGG50A	Rubber Switch (5 continuous)	3
2	SHSG1600B	Felt (Key Stopper)	1
3	STBG4011A	Key Guide	1
4	SHSG1460A	Felt (Key Guide)	13
5	STBG1090A	White Key	8
○ 5 EX50-K EX50L-K	STBG1090C	White Key, SX-EX50-K/EX50L-K only	8
6	STBG2052A	Black Key	5
7	SUSG180A	Spring	13
8	SHGG8130A	Rubber	13
9	SHRG9240A	Spacer	13
N1	XTB3+6F	Screw	6
N2	XNG5BS	Nut	13
N3	XTB3+6B	Screw	5
N4	SNEG360A	Bolt	13
		KNOB	
	SBNG4010A	Mic Volume Knob	1
	SBNG7031A	Slide Volume Knob, tempo control, transpose	2

Ref. No.	Part No.	Description	Per/Set
		BUTTON (SX-EX50-K/EX50L-K)	
	SBCG20I47	Power Switch	1
○	SBCG140H24	string 8′	1
○	SBCG140N12	flute 4′, 8′ } lower tab voices	2
	SBCG170G00	full	1
	SBCG160K00	2′ (program) lower harmonic coupler	1
○	SBCG140G40	trombone	1
○	SBCG140G42	saxophone	1
○	SBCG140G44	clarinet	1
○	SBCG140G51	flute } U&L solo presets	1
○	SBCG140G53	pan flute	1
○	SBCG140G91	synthe	1
	SBCG170G00	volume	2

Ref. No.	Part No.	Description	Per/Set
○	SBCG140G47	chorus	1
○	SBCG140G76	tremolo } chorus/ tremolo/ celeste	1
	SBCG140N12	U tab voices, L tab voices	2
○	SBCG140G78	U&L poly presets	1
○	SBCG140G86	set	1
○	SBCG140N01	1	1
○	SBCG140N02	2 } voice setting computer	1
○	SBCG140N03	3	1
○	SBCG140N04	4	1
○	SBCG141H01	cancel	1
	SBCG140H25	solo presets	1
	SBCG140H30	string ensemble } lower orchestral conductor	1
	SBCG140H29	poly presets	1
	SBCG140H32	tab voices	1
○	SBCG140G77	solo presets	1
○	SBCG140G83	string ensemble } upper orchestral conductor	1
○	SBCG140G82	poly presets	1
○	SBCG140G85	tab voices	1
○	SBCG140G46	wah brass	1
○	SBCG140G35	banjo	1
○	SBCG140G44	clarinet	1
○	SBCG140G38	guitar	1
○	SBCG140G43	accordion	1
○	SBCG140G36	vibraphone } U&L poly presets	1
○	SBCG140G42	saxophone	1
○	SBCG140G34	harpsichord	1
○	SBCG140G40	trombone	1
○	SBCG140G32	piano	1
	SBCG170G00	full	1
	SBCG170G00	U&L string ensemble volume	4
	SBCG160K00	$2^{2}/_{3}'$ (program) upper harmonic coupler	1
○	SBCG140H24	click, 4′ upper percussive tone	2
○	SBCG140H24	string 8′	1
○	SBCG140N12	flute 2′, 4′, 8′, 16′ } upper tab voices	4
	SBCG170G00	volume	2
○	SBCG140G24	electric bass	1
○	SBCG140N13	bass 8′ } bass	1
○	SBCG140N14	bass 16′	1
	SBCG170G00	volume	2
○	SBCG140N07	I } fill in	1
○	SBCG140N08	II	1
○	SBCG140G66	waltz	1
○	SBCG140G67	tango	1
○	SBCG140G64	mambo	1
○	SBCG140G65	samba	1
○	SBCG140G62	rhumba	1
○	SBCG140G63	bossanova I } drum percussion selector	1
○	SBCG140G60	ballad	1
○	SBCG140G61	disco I	1
○	SBCG140G58	8 beat	1
○	SBCG140G59	16 beat	1
○	SBCG140G56	march	1
○	SBCG140G57	swing I	1
○	SBCG140N07	I } rhythm composer	1
○	SBCG140N08	II	1

Ref. No.	Part No.	Description	Per/Set
○	SBCG140N09	on rhythm sequencer	1
	SBCG170G00	drum percussion volume	2
○	SBCG140G69	melodic } rhythmic orchestra	1
○	SBCG140G68	rhythmic	1
○	SBCG140H21	I/II	1
	SBCG170G00	volume	2
○	SBCG140J05	on } intro & ending	1
○	SBCG140G71	vari	1
○	SBCG140H20	on } techni-chode	1
	SBCG140G70	close/open	1
○	SBCG140K07	on one touch play	1
○	SBCG140H23	memory } program chord computer	1
○	SBCG140H22	fingered	1
○	SBCG140G72	pcc	1
○	SBCG141G01	cancel	1
○	SBCG140N00	start/stop } drum percussion	1
○	SBCG140G75	synchro & break	1
○	SBCG140G74	glide/rhythm (program)	1
○	SBCG140G73	record	1
○	SBCG160N00	solo, upper } play sequencer	1
	SBCG160H00	lower, bass	1
	SBCG160H00	free set } tuning	1
	SBCG170G00	control volume	2
	SBCG170G00	main volume, reverb	4
	SBCG160H00	on } sustain control	3
	SBCG170G00	control volume	8
	SBCG140J00	fullband setting computer	1
	SHRG9410A	lever } push switch button	122
	SHRG9420A	case	122
	BUTTON (SX-EX50)		
	SBCG20147	Power Switch	1
○	SBCG140B26	string 8′ } lower tab voices	1
○	SBCG140A35	flute 4′, 8′	2
	SBCG170G00	full	1
	SBCG160K00	2′ (program) lower harmonic coupler	1
	SBCG140F01	trombone } U&L solo presets	1
	SBCG140F02	saxophone	1
	SBCG140F04	clarinet	1
	SBCG140F05	flute	1
	SBCG140F06	pan flute	1
	SBCG140F27	synthe	1
	SBCG170G00	volume	2
	SBCG140A21	chorus } chorus/ tremolo/ celeste	1
○	SBCG140D04	tremolo	1
	SBCG140A35	U tab voices, L tab voices	2
○	SBCG140E21	U&L poly presets	1

Ref. No.	Part No.	Description	Per/Set
○	SBCG140A36	set } voice setting computer	1
○	SBCG140L13	1	1
○	SBCG140L14	2	1
○	SBCG140L15	3	1
○	SBCG140L16	4	1
	SBCG141D01	cancel	1
	SBCG140H25	solo presets } lower orchestral conductor	1
	SBCG140H30	string ensemble	1
	SBCG140H29	poly presets	1
	SBCG140H32	tab voices	1
○	SBCG140G77	solo presets } upper orchestral conductor	1
○	SBCG140G83	string ensemble	1
○	SBCG140G82	poly presets	1
○	SBCG140G85	tab voices	1
○	SBCG140E05	wah brass } U&L poly presets	1
	SBCG140B09	banjo	1
○	SBCG140E04	clarinet	1
	SBCG140B08	guitar	1
	SBCG140E03	accordion	1
	SBCG140B05	vibraphone	1
	SBCG140E02	saxophone	1
	SBCG140B04	harpsichord	1
	SBCG140E01	trombone	1
	SBCG140B03	piano	1
	SBCG170G00	full	1
	SBCG170G00	U&L string ensemble volume	4
	SBCG160K00	$2^{2}/_{3}$′ (program) } upper harmonic coupler	1
○	SBCG140C16	click } upper percussive tone	1
	SBCG140A35	4′	1
○	SBCG140B26	string 8′ } upper tab voices	1
	SBCG140A35	flute 2′, 4′, 8′, 16′	4
	SBCG170G00	volume	2
	SBCG140B10	electric bass } bass	1
	SBCG140A04	bass 8′	1
	SBCG140A03	bass 16′	1
	SBCG170G00	volume	2
	SBCG140K02	I } fill in	1
	SBCG140K03	II	1
	SBCG140C15	waltz } drum percussion selector	1
	SBCG140A28	tango	1
	SBCG140A27	mambo	1
	SBCG140C14	samba	1
	SBCG140C13	rhumba	1
	SBCG140A26	bossanova I	1
	SBCG140A25	ballad	1
	SBCG140C12	disco I	1
	SBCG140C11	8 beat	1
	SBCG140A24	16 beat	1
	SBCG140A23	march	1
	SBCG140C10	swing I	1
	SBCG140E16	I } rhythm composer	1
	SBCG140E17	II	1
	SBCG140E11	on rhythm sequencer	1
	SBCG170G00	drum percussion volume	2

Ref. No.	Part No.	Description	Per/Set
	SBCG140E08	melodic } rhythmic orchestra	1
	SBCG140E09	rhythmic	1
	SBCG140B15	I/II	1
	SBCG170G00	volume	2
○	SBCG140J05	on } intro & ending	1
○	SBCG140K08	vari	1
	SBCG140D02	on } techni-chord	1
	SBCG140L08	close/open	1
○	SBCG140B27	on one touch play	1
	SBCG140A13	memory } program chord computer	1
	SBCG140J03	fingered	1
	SBCG140J02	pcc	1
	SBCG141K01	cancel	1
	SBCG140G00	start/stop } drum percussion	1
○	SBCG140A37	synchro & break	1
	SBCG140A30	glide/rhythm (program)	1

Ref. No.	Part No.	Description	Per/Set
	SBCG140F10	record	1
	SBCG160E00	solo, upper } play sequencer	2
	SBCG160B00	lower, bass	2
	SBCG160C00	free set } tuning	1
	SBCG170G00	control volume	2
	SBCG170G00	main volume, reverb	4
	SBCG160C00	on } sustain control	3
	SBCG170G00	control volume	8
	SBCG140L00	fullband setting computer	1
	SHRG9410A	lever } push switch button	122
	SHRG9420A	case	122

REPLACEMENT PARTS LIST......Electrical Parts

Notes:

1. Printed circuit boards are supplied only during the period of production.
2. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "S" mark is service standard parts and may differ from production parts.
4. ○ mark are new parts.
5. For part No. with area mark, check the area when placing an order.
6. Cabinet Colour
   EX-50·K EX-50L·K : Black face

■ Numbering System of Resistor

- All resistors are 1/4 WATT, ±5% TOLERANCE unless otherwise designated in the schematic diagram.
- Resistors with Ⓕ symbolic mark are Flame-Proof resistors.
- Resistors with 🄵 symbolic mark are fuse type Flame-Proof resistors.

Resistor Type	Wattage	Tolerance
ERD : Carbon ERD—F : Carbon, Flame-Proof ERO : Metal Film	S2 : 1/4W 2 : 1/4W 25 : 1/4W 50 : 1/2W	F : ±1% G : ±2% J : ±5%
ERG : Metal Oxide ERX : Metal Film	1 : 1W 2 : 2W	

Example:

Carbon:	ERD	S2	T	J	101	
	Type	Wattage	Shape	Tolerance	Value	
Carbon Flame-Proof:	ERD	2	F	C	G	101
	Type	Wattage	Flame-Proof	Fuse Type	Tolerance	Value
Metal Film:	ERO	S2	T	K	F	2201
	Type	Wattage	Shape	Peculiarity use	Tolerance	Value
Metal Oxide (Metal Film):	ERG(X)	1	AN	J	121	
	Type	Wattage	Shape	Tolerance	Value	

■ Numbering System of Capacitor

- All capacitors are microfarads unless otherwise specified in the schematic diagram.

Capacitor Type	Symbol Mark	Voltage		Tolerance
		ECEA Type	Others	
ECEA : Electrolytic		0J : 6.3V	1H : 50V	ECEA Type : ±20%
ECEA—N : Non-Polar Electrolytic	Ⓝ	1C : 16V	1E : 25V	J : ±5%
ECEA—Y : Non-Polar Electrolytic	Ⓨ	1E : 25V	1V : 35V	K : ±10%
ECEA—M : Electrolytic, MSR Series	(MS)	1H :		M : ±20%
ECEA—Z : Electrolytic, Z Series	Ⓩ	50Y : 50V		Z : $^{+80}_{-20}$%
ECEA—K : Electrolytic, miniature type	Ⓚ	50M : 50V		F : ±1pF
ECQV(B) : TF Capacitor	(TF)	50Z : 50V		
ECQM(G) : Polyester				
ECC : Ceramic	○			
ECK : Ceramic	○			
ECS : Tantalume Solid Electrolytic	Ⓣ			

Example:

Electrolytic:	ECEA	0J	U	330	
	Type	Voltage	Peculiarity use	Value	
MSR Series:	ECEA	50	M	R47	R
	Type	Voltage	Peculiarity use	Value	Special use
TF, Polyester:	ECQV	1H	102	J	
	Type	Voltage	Value	Tolerance	
Ceramic:	ECC(K)	R	1H	220	J
	Type	Shape	Voltage	Value	Tolerance
Tantalume Solid:	ECS	F	1V	Z	105
	Type	Shape	Voltage	Peculiarity use	Value

■ PRINTED CIRCUIT BOARD

	Ref. No.	Part No.	Description	Per/Set
○		SXPG131411	System Assigner (SAS)	1
○		SXPG131511	Tone Generator Module (TGM)	1
		SXPG12311	L. Sustain Control (LSC)	(1)
○		SXPG123131	U. Sustain Control (USC)	(1)
		SXPG12341	Percussive TG Sustain Control (PSC)	(1)
○		SXPG117451	Organ (ORG)	1
○		SXPG132511	Orchestral & Percussive Presets (OP)	1
○		SXPG116851	Accompaniment (ACC)	1
○		SXPG113291	Solo Presets (SPS)	1
○		SXPG131611A	Bass & Drum Percussion (BD)	1
○		SXPG131711	Tremolo & Celeste Modulation (LCM)	1
○		SXPG131611B	Selector & Mixing (SM)	1
○		SXPG131821	Mother Board (MB)	1
○	EX50·K EX50L·K	SXPG131211A	Upper Control Panel Right (CPR)	1
○		SXPG131211B	Upper Control Panel Left (CPL)	1
○		SXPG131311A	Lower Control Panel Left (CPSL)	1
○		SXPG131311B	Lower Control Panel Right (CPSR)	1
○	SX·EX50	SXPG131221A	Upper Control Panel Right (CPR)	1
○		SXPG131221B	Upper Control Panel Left (CPL)	1
○		SXPG131321A	Lower Control Panel Left (CPSL)	1
○		SXPG131321B	Lower Control Panel Right (CPSR)	1
○		SXEG51A	Musical Display (MD)	1
		SXPG12281	Memory Pack Control (MPC)	1
		SXPG126721	Lower Keyboard (LKB)	1
		SXPG126711	Upper Keyboard (UKB)	1
		SXPG11701	Pedal Keyboard (PKB)	1
○		SXPG132111	Jack 1 (JACK 1)	1
○		SXPG131911B	Jack 2 (JACK 2)	1
○		SXPG118061	Network (NW)	1
○		SXPG133811	Noise Reduction (NR)	1
		SXPG103211	Expression (EXP)	1
○	EZ	SXPG131941C	Filter (LF) } [EZ] only	1
○	EZ	SXPG125741	Filter 2 (LF 2)	1
○		SXPG132011	Power Amplifier (PA)	1
○	MC XT	SXPG132021	Power Amplifier (PA), [MC][XT] only	1
○		SXPG131911A	Power Supply (PS)	1
○	MC XT	SXPG131921A	Power Supply (PS), [MC][XT] only	1
○	EZ	SXPG131941A	Power Supply (PS), [EZ] only	1
○		SXPG132311	AC Power Supply (ACP)	1
○	MC XT	SXPG132331	AC Power Supply (ACP), [MC][XT] only	1
○	EZ	SXPG132351	AC Power Supply (ACP), [EZ] only	1
○	EK XS XL XR X XX XV	SXPG132321	AC Power Supply (ACP), [EK][XS][XL][XR][X][XX] [XV] only	1

■ SYSTEM ASSIGNER CIRCUIT (SAS)

	Ref. No.	Part No.	Description	Per/Set
		INTEGRATED CIRCUITS		
	IC1	SVIG7810H	1 chip 8 bit Microcomputer	1
	IC2	SVIGM6050211	Gate Array	1
	IC3	SVIG65002017	Gate Array	1
○	IC4	SVIG02EX50-A	256K bit ROM	1
○	IC5	SVIG02EX50-B	256K bit ROM	1
	IC6	SVIGD446415L	64K bit CMOS RAM	1
○	IC8	SVIGM74LS03	Quadruple 2-Input Positive NAND Gate, with Open Collector Output	1
	IC9	SVIGM53216	Hex Inverters	1
	IC10	SVIGTC74HC04	Hex Inverters	1
	IC11～16	SVIGM5218L	Operational Amplifier	6
		TRANSISTORS		
	Q1～3, 6	2SA933STRS		4
	Q4	2SC1047C		1
	Q5	2SC2320LFG		1
		DIODES		
	D1, 2	MA165TA5		2
	D3	MA4036H	Zener	1
		COMPONENT COMBINATIONS		
	Z1～4	EXBP88472MM	4.7KΩ×8	4
		QUARTZ & CERAMIC OSCILLATORS		
	X1	SVQG43U1500A	15MHz, Quartz Oscillator	1
○	X2	EFOFC4004A3	4MHz, Ceramic Oscillator	1
		SEMI-FIXED RESISTORS		
○	VR1, 2	EVSG0T1B103A	10KΩ B	2
		COILS		
	L1	SLQG80W13A	80μH	1
	L2	SLQG16W33A	16μH	1
		RESISTORS		
		ERDS2TJ330	33Ω	2
		ERDS2TJ101	100Ω	2
		ERDS2TJ331	330Ω	1
		ERDS2TJ471	470Ω	1
		ERDS2TJ681	680Ω	1
		ERDS2TJ102	1KΩ	4
		ERDS2TJ222	2.2KΩ	4
		ERDS2TJ272	2.7KΩ	2
		ERDS2TJ332	3.3KΩ	2
		ERDS2TJ472	4.7KΩ	12
		ERDS2TJ103	10KΩ	4
		ERDS2TJ123	12KΩ	3
		ERDS2TJ223	22KΩ	3
		ERDS2TJ333	33KΩ	1
		ERDS2TJ473	47KΩ	1
		ERDS2TJ823	82KΩ	1
		ERDS2TJ104	100KΩ	6
		ERDS2TJ124	120KΩ	9
		ERDS2TJ184	180KΩ	8
		ERDS2TJ224	220KΩ	2
		ERDS2TJ474	470KΩ	9
		ERDS2TJ105	1MΩ	1

Ref. No.	Part No.	Description	Per/Set
CAPACITORS			
	ECEA1CU101	100μF, 16V	1
	ECEA1HU010	1μF, 50V	1
	ECQG1H102KZ	0.001μF	1
	ECQG1H682KZ	0.0068μF	2
	ECQM1H103KV	0.01μF	7
	ECQM1H333KV	0.033μF	1
	ECQM1H473KV	0.047μF	1
	ECQM1H683KV	0.068μF	8
	ECQV1H104JZ	ⓉⒻ 0.1μF	2
	ECQV1H224JZ	ⓉⒻ 0.22μF	2
	ECQV1H474JZ	ⓉⒻ 0.47μF	1
	ECCR1H220J	○ 22PF	2
	ECCR1H221J	○ 220PF	1
	ECKR1E473ZV	○ 0.047μF	10
	EECW5R5F104	0.1F, 5.5V, Liquid Electrolyte Double Layer	1

■ TONE GENERATOR MODULE CIRCUIT (TGM)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGUPD6303G	Top Octave Synthe LSI	1
IC2, 4, 5	SVIGUPD6304G	Tone Generator LSI	3
IC7~21, 24, 25	SVIGM5218L	Operational Amplifier	17
IC26	SVIGTC40H393	4 bit Binary Counter	1
IC27	SVIGTC40H004	Hex Inverters	1
DIODES			
D1, 2	MA165TA5		2
D3	SVDGRK14		1
COMPONENT COMBINATIONS			
Z1	EXBP811102MM	1KΩ×11	1
Z2	EXBP810102MM	1KΩ×10	1
Z3	EXBP812102MM	1KΩ×12	1
COILS			
L1, 2	ELQS180KB	18μH (Master Clock OSC)	2
PRINTED CIRCUIT BOARDS			
SC1	SXPG123131	U. Sustain Control (USC)	1
SC2	SXPG12311	L. Sustain Control (LSC)	1
PSC	SXPG12341	Percussive TG Sustain Control (PSC)	1
RESISTORS			
	ERDS2TJ101	100Ω	2
	ERDS2TJ332	3.3KΩ	2
	ERDS2TJ472	4.7KΩ	2
	ERDS2TJ562	5.6KΩ	1
	ERDS2TJ103	10KΩ	31
	ERDS2TJ273	27KΩ	1
	ERDS2TJ473	47KΩ	4
⚠	ERD2FCJ4R7	🄵 4.7Ω, 1/4W, Fuse Type	1
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	2
⚠	ERD2FCG220	🄵 22Ω, 1/4W, Fuse Type	1
CAPACITORS			
	ECEA0JU331	330μF, 6.3V	3
	ECEA1EU330	33μF, 25V	2
	ECSF1VE105	Ⓣ 1μF, 35V	5
	ECQG1H152KZ	0.0015μF	2
	ECCR1H330J	○ 33PF	2
	ECCR1H221J	○ 220PF	4
	ECCR1H471J	○ 470PF	32
	ECKR1E473ZV	○ 0.047μF	6

■ L. SUSTAIN CONTROL CIRCUIT (LSC)

Ref. No.	Part No.	Description	Per/Set
DIODES			
D1~9	MA165TA5		9
RESISTORS			
	ERDS2TJ821	820Ω	1
	ERDS2TJ103	10KΩ	1
	ERDS2TJ563	56KΩ	1
	ERDS2TJ334	330KΩ	8
	ERDS2TJ155	1.5MΩ	8
CAPACITORS			
	ECQG1H102KZ	0.001μF	1
	ECSF1VZ105	Ⓣ 1μF, 35V	8

■ U. SUSTAIN CONTROL CIRCUIT (USC)

Ref. No.	Part No.	Description	Per/Set
DIODES			
D1~9	MA165TA5		9
RESISTORS			
	ERDS2TJ821	820Ω	1
	ERDS2TJ103	10KΩ	1
	ERDS2TJ563	56KΩ	1
	ERDS2TJ154	150KΩ	8
	ERDS2TJ684	680KΩ	8
CAPACITORS			
	ECQG1H102KZ	0.001μF	1
	ECSF1VE225	Ⓣ 2.2μF, 35V	8

■ PERCUSSIVE TG SUSTAIN CONTROL CIRCUIT (PSC)

Ref. No.	Part No.	Description	Per/Set
DIODES			
D1~9	MA165TA5		9
COMPONENT COMBINATIONS			
Z1, 2	SREGLN4Y474J	470KΩ×4	2
Z3, 4	SREGLN4Y565J	5.6MΩ×4	2
RESISTORS			
	ERDS2TJ821	820Ω	1
	ERDS2TJ822	8.2KΩ	1
	ERDS2TJ103	10KΩ	2
	ERDS2TJ563	56KΩ	1
CAPACITORS			
	ECQG1H102KZ	0.001μF	1
	ECSF1VZ474	Ⓣ 0.47μF, 35V	8

■ ORGAN CIRCUIT (ORG)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1~7, 9	SVIGM5218L	Operational Amplifier	8
IC10	SVIGUPD4066B	Quadruple Bilateral Switch	1
RESISTORS			
	ERDS2TJ332	3.3KΩ	2
	ERDS2TJ682	6.8KΩ	4
	ERDS2TJ822	8.2KΩ	4
	ERDS2TJ103	10KΩ	6
	ERDS2TJ123	12KΩ	5
	ERDS2TJ153	15KΩ	12
	ERDS2TJ183	18KΩ	6
	ERDS2TJ223	22KΩ	13
	ERDS2TJ273	27KΩ	11
	ERDS2TJ333	33KΩ	12
	ERDS2TJ393	39KΩ	8
	ERDS2TJ473	47KΩ	18
	ERDS2TJ563	56KΩ	9
	ERDS2TJ683	68KΩ	9
	ERDS2TJ823	82KΩ	10
	ERDS2TJ104	100KΩ	4
	ERDS2TJ124	120KΩ	5
	ERDS2TJ154	150KΩ	5
	ERDS2TJ184	180KΩ	2
	ERDS2TJ224	220KΩ	2
⚠	ERD2FCJ4R7	🄵 4.7Ω, 1/4W, Fuse Type	1
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	2
CAPACITORS			
	ECEA0JU101	100µF, 6.3V	1
	ECEA1CU470	47µF, 16V	1
	ECEA1EU330	33µF, 25V	2
	ECEA1HN010S	Ⓝ 1µF, 50V	2
	ECQG1H682KZ	0.0068µF	1
	ECQM1H103KV	0.01µF	1
	ECQM1H153KV	0.015µF	1
	ECQM1H223KV	0.022µF	2
	ECQM1H333KV	0.033µF	1
	ECQM1H473KV	0.047µF	2
	ECQB1H102JZ	(TF) 0.001µF	12
	ECQB1H152JZ	(TF) 0.0015µF	8
	ECQB1H222JZ	(TF) 0.0022µF	10
	ECQB1H332JZ	(TF) 0.0033µF	10
	ECQB1H472JZ	(TF) 0.0047µF	14
	ECQB1H682JZ	(TF) 0.0068µF	14
	ECQB1H103JZ	(TF) 0.01µF	16
	ECQB1H153JZ	(TF) 0.015µF	6
	ECQB1H223JZ	(TF) 0.022µF	6
	ECQB1H333JZ	(TF) 0.033µF	2
	ECQV1H473JZ	(TF) 0.047µF	2
	ECQV1H683JZ	(TF) 0.068µF	4
	ECQV1H104JZ	(TF) 0.1µF	2
	ECCR1H151J	○ 150PF	3
	ECCR1H221J	○ 220PF	2
	ECCR1H331J	○ 330PF	6
	ECCR1H471J	○ 470PF	2
	ECCR1H681J	○ 680PF	11
	ECKR1E473ZV	○ 0.047µF	5

■ ORCHESTRAL & PERCUSSIVE PRESETS CIRCUIT (OP)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1~3, 5, 9~13, 18	SVIGM5218L	Operational Amplifier	10
IC6	SVIGHD14051B	8-channel Analog Multi-plexer/Demultiplaxer	1
IC8	SVIGBA6704	VCF (Voltage Controlled Filter)	1
IC14	SVIGBA6110	VCA (Voltage Controlled Amplifier)	1
IC15	SVIGNJM082D	Operational Amplifier	1
IC16	SVIGTC40H004	Hex Inverter	1
IC17	SVIGM8041111	1 chip 8 bit Microcomputer	1
TRANSISTORS			
Q1, 5, 6, 8, 9	2SJ40CD	FET	5
Q2	2SC2320LFG		1
DIODES			
D4~6	MA165TA5		3
COMPONENT COMBINATION			
Z1	EXBP88223MM	22KΩ×8	1
CERAMIC OSCILLATOR			
X1	SVQGCSA600MT	6MHz	1
RESISTORS			
	ERDS2TJ331	330Ω	2
	ERDS2TJ681	680Ω	2
	ERDS2TJ102	1KΩ	6
	ERDS2TJ222	2.2KΩ	1
	ERDS2TJ332	3.3KΩ	2
	ERDS2TJ472	4.7KΩ	7
	ERDS2TJ562	5.6KΩ	2
	ERDS2TJ682	6.8KΩ	2
	ERDS2TJ103	10KΩ	1
	ERDS2TJ123	12KΩ	1
	ERDS2TJ153	15KΩ	3
	ERDS2TJ183	18KΩ	1
	ERDS2TJ223	22KΩ	7
	ERDS2TJ273	27KΩ	1
	ERDS2TJ333	33KΩ	10
	ERDS2TJ393	39KΩ	1
	ERDS2TJ473	47KΩ	6
	ERDS2TJ563	56KΩ	6
	ERDS2TJ683	68KΩ	8
	ERDS2TJ823	82KΩ	13
	ERDS2TJ104	100KΩ	12
	ERDS2TJ124	120KΩ	1
	ERDS2TJ154	150KΩ	4
	ERDS2TJ184	180KΩ	1
	ERDS2TJ224	220KΩ	3
	ERDS2TJ274	270KΩ	1
	ERDS2TJ474	470KΩ	2
	ERDS2TJ564	560KΩ	1
	ERDS2TJ105	1MΩ	5
	EROS2TKF2201	2.2KΩ, ±1%	2
⚠	ERD2FCJ4R7	🄵 4.7Ω, 1/4W, Fuse Type	1
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	2
CAPACITORS			
	ECEA1CU100	10µF, 16V	1
	ECEA1CU101	100µF, 16V	3
	ECEA1HU010	1µF, 50V	3
	ECEA1HN010S	Ⓝ 1µF, 50V	2
	ECQG1H102KZ	0.001µF	8
	ECQG1H152KZ	0.0015µF	3
	ECQG1H222KZ	0.0022µF	4
	ECQG1H332KZ	0.0033µF	2

Ref. No.	Part No.	Description	Per/Set
	ECQG1H472KZ	0.0047µF	7
	ECQG1H682KZ	0.0068µF	3
	ECQM1H103KV	0.01µF	4
	ECQM1H153KV	0.015µF	2
	ECQM1H223KV	0.022µF	2
	ECQM1H333KV	0.033µF	5
	ECQM1H473KV	0.047µF	1
	ECQM1H683KV	0.068µF	2
	ECQM1H104KV	0.1µF	4
	ECQV1H104JZ	(TF) 0.1µF	1
	ECQV1H154JZ	(TF) 0.15µF	1
	ECQV1H334JZ	(TF) 0.33µF	2
	ECQV1H474JZ	(TF) 0.47µF	1
	ECCR1H330J	○ 33PF	2
	ECCR1H101J	○ 100PF	2
	ECCR1H151J	○ 150PF	1
	ECCR1H331J	○ 330PF	4
	ECCR1H471J	○ 470PF	2
	ECCR1H681J	○ 680PF	4
	ECKR1E473ZV	○ 0.047µF	8

■ ACCOMPANIMENT CIRCUIT (ACC)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGTC40H002	Quadruple 2-Input Positive NOR Gates	1
IC2, 11	SVIGTC40H374	Octal D-Type Flip-Flops	2
IC3, 12	SVIGM53217	Hex Buffers (Open Collector)	2
IC4	SVIGM53216	Hex Inverters	1
IC5	SVIGTC4013BP	Dual D-Type Flip-Flops	1
IC6	SVIGBA6110	VCA (Voltage Controlled Amplifier)	1
IC7, 14, 17	SVIGUPD4066B	Quadruple Bilateral Switch	3
IC8~10, 13, 15, 18	SVIGM5218L	Operational Amplifier	6
IC16	SVIGBA6704	VCF (Voltage Controlled Filter)	1
TRANSISTORS			
Q1	2SA933STRS		1
Q2, 3	2SC2320LFG		2
DIODES			
D1~18	MA165TA5		18
RESISTORS			
	ERDS2TJ221	220Ω	2
	ERDS2TJ102	1KΩ	4
	ERDS2TJ122	1.2KΩ	1
	ERDS2TJ332	3.3KΩ	4
	ERDS2TJ472	4.7KΩ	4
	ERDS2TJ562	5.6KΩ	1
	ERDS2TJ682	6.8KΩ	9
	ERDS2TJ822	8.2KΩ	1
	ERDS2TJ103	10KΩ	13
	ERDS2TJ153	15KΩ	5
	ERDS2TJ183	18KΩ	1
	ERDS2TJ223	22KΩ	7
	ERDS2TJ273	27KΩ	3
	ERDS2TJ333	33KΩ	5
	ERDS2TJ473	47KΩ	17
	ERDS2TJ683	68KΩ	1

Ref. No.	Part No.	Description	Per/Set
	ERDS2TJ823	82KΩ	1
	ERDS2TJ104	100KΩ	6
	ERDS2TJ154	150KΩ	3
	ERDS2TJ184	180KΩ	1
	ERDS2TJ224	220KΩ	3
	ERDS2TJ474	470KΩ	5
	ERDS2TJ105	1MΩ	5
⚠	ERD2FCJ4R7	🄵 4.7Ω, 1/4W, Fuse Type	1
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	2
CAPACITORS			
	ECEA0JU221	220µF, 6.3V	1
	ECEA1CU100	10µF, 16V	1
	ECEA1CU470	47µF, 16V	1
	ECEA1CU101	100µF, 16V	2
	ECEA1EU4R7	4.7µF, 25V	1
	ECEA1HU010	1µF, 50V	1
	ECEA50ZR22	ⓩ 0.22µF, 50V	2
	ECEA50ZR68	ⓩ 0.68µF, 50V	3
	ECQG1H472KZ	0.0047µF	3
	ECQG1H682KZ	0.0068µF	2
	ECQM1H103KV	0.01µF	3
	ECQM1H104KV	0.1µF	1
	ECQV1H474JZ	(TF) 0.47µF	1
	ECCR1H151J	○ 150PF	1
	ECCR1H221J	○ 220PF	2
	ECCR1H331J	○ 330PF	3
	ECCR1H681J	○ 680PF	1
	ECKR1E473ZV	○ 0.047µF	10

■ SOLO PRESETS CIRCUIT (SPS)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGM8049569	1 chip 8 bit Microcomputer	1
○ IC3	SVIG02EX50-C	256K bit ROM	1
IC4	SVIG65002019	Gate Array	1
IC5	SVIGHD14046B	Phase Locked Loop	1
IC6	SVIGUPC624C	8 bit D-A Converter	1
IC7	AN6552F	Operational Amplifier	1
IC8	SVIGNJM082D	Operational Amplifier	1
IC9	SVIGUPD4066B	Quadruple Bilateral Switch	1
TRANSISTOR			
Q1	2SC2320LFG		1
DIODES			
D1, 3, 7	MA165TA5		3
COMPONENT COMBINATION			
Z1	EXBP88103MM	10KΩ×8	1
CERAMIC OSCILLATOR			
X1	SVQGCSA110MT	11MHz	1
RESISTORS			
	ERDS2TJ101	100Ω	2
	ERDS2TJ102	1KΩ	1
	ERDS2TJ222	2.2KΩ	1
	ERDS2TJ332	3.3KΩ	2
	ERDS2TJ472	4.7KΩ	6

Ref. No.	Part No.	Description	Per/Set
	ERDS2TJ103	10KΩ	7
	ERDS2TJ153	15KΩ	4
	ERDS2TJ223	22KΩ	2
	ERDS2TJ333	33KΩ	5
	ERDS2TJ473	47KΩ	1
	ERDS2TJ563	56KΩ	1
	ERDS2TJ683	68KΩ	2
	ERDS2TJ104	100KΩ	1
	ERDS2TJ154	150KΩ	1
	ERDS2TJ224	220KΩ	1
	ERDS2TJ105	1MΩ	2
	ERDS2TJ155	1.5MΩ	1
⚠	ERD2FCG220	🄵 22Ω, 1/4W, Fuse Type	2
CAPACITORS			
	ECEA1EU330	33μF, 25V	3
	ECEA1HUR47	0.47μF, 50V	1
	ECEA1HU010	1μF, 50V	1
	ECEA1HN010S	Ⓝ 1μF, 50V	1
	ECEA50ZR1	ⓩ 0.1μF, 50V	1
	ECQG1H102KZ	0.001μF	1
	ECQG1H152KZ	0.0015μF	1
	ECQG1H222KZ	0.0022μF	1
	ECQM1H103KV	0.01μF	1
	ECQM1H153KV	0.015μF	1
	ECQV1H334JZ	(TF) 0.33μF	2
	ECQV1H474JZ	(TF) 0.47μF	1
	ECCR1H220J	○ 22PF	2
	ECCR1H101J	○ 100PF	1
	ECCR1H151J	○ 150PF	2
	ECKR1E473ZV	○ 0.047μF	8

■ BASS & DRUM PERCUSSION CIRCUIT (BD)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
○ IC1	MN50015PGQ	Gate Array	1
○ IC2	MN231001PGW	Wave ROM	1
IC3, 11	SVIGHA17008P	8 bit D-A Converter	2
○ IC4, 14	SVIGM5238L	Operational Amplifier	2
IC5	SVIGHD14051B	8-channel Analog Multiplexer/Demultiplexer	1
IC7	SVIGM5241L	Dual VCF (Voltage Controlled Filter)	1
IC8	SVIGM8049569	1 chip 8 bit Microcomputer	1
IC9	SVIG2364096	64K bit Mask ROM	1
IC10	SVIG65002019	Gate Array	1
IC12	SVIGHD14046B	Phase-Locked Loop	1
IC13	SVIGM5218L	Operational Amplifier	1
DIODE			
D1	MA165TA5		1
COMPONENT COMBINATIONS			
Z1	EXBP88472MM	4.7KΩ×8	1
○ Z2	EXBLD8102G	1KΩ×8	1
Z3	EXBP88103MM	10KΩ×8	1
CERAMIC OSCILLATOR			
X1	SVQGCSA110MT	11MHz	1

Ref. No.	Part No.	Description	Per/Set
RESISTORS			
	ERDS2TJ101	100Ω	1
	ERDS2TJ471	470Ω	4
	ERDS2TJ102	1KΩ	1
	ERDS2TJ152	1.5KΩ	1
	ERDS2TJ222	2.2KΩ	4
	ERDS2TJ472	4.7KΩ	7
	ERDS2TJ103	10KΩ	5
	ERDS2TJ153	15KΩ	3
	ERDS2TJ223	22KΩ	6
	ERDS2TJ333	33KΩ	1
	ERDS2TJ473	47KΩ	3
	ERDS2TJ823	82KΩ	2
	ERDS2TJ104	100KΩ	1
	ERDS2TJ124	120KΩ	3
	ERDS2TJ105	1MΩ	1
	ERDS2TJ155	1.5MΩ	2
⚠	ERD2FCJ4R7	🄵 4.7Ω, 1/4W, Fuse Type	2
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	2
CAPACITORS			
	ECEA0JU470	47μF, 6.3V	1
	ECEA1CU101	100μF, 16V	3
	ECEA1HUR47	0.47μF, 50V	1
	ECEA1HU010	1μF, 50V	1
	ECEA1HN010S	Ⓝ 1μF, 50V	1
	ECEA50MR1R	(MS) 0.1μF, 50V	1
	ECQG1H102KZ	0.001μF	1
	ECQG1H152KZ	0.0015μF	1
	ECQG1H222KZ	0.0022μF	1
	ECQG1H332KZ	0.0033μF	1
	ECQG1H472KZ	0.0047μF	2
	ECQM1H103KV	0.01μF	2
	ECQM1H333KV	0.033μF	1
	ECCR1H220J	○ 22PF	2
	ECCR1H330J	○ 33PF	1
	ECCR1H470J	○ 47PF	1
	ECCR1H151J	○ 150PF	2
	ECKR1E473ZV	○ 0.047μF	4

■ TREMOLO & CELESTE MODULATION CIRCUIT (LCM)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC2, 5, 11~13	SVIGMSM4011	Quadruple 2-Input NAND Gates	5
IC4, 8, 17, 18	SVIGM5218L	Operational Amplifier	4
IC6, 7, 14~16	MN3006	BBD for Audio Signal Delays (128-stage)	5
TRANSISTORS			
Q1, 3~14	2SC2320LFG		13
Q2	2SJ40CD	FET	1
DIODES			
D1~11	MA165TA5		11
SEMI-FIXED RESISTOR			
○ VR1	EVSG0T1B223A	22KΩ B	1

Ref. No.	Part No.	Description	Per/Set
RESISTORS			
	ERDS2TJ331	330Ω	6
	ERDS2TJ102	1KΩ	1
	ERDS2TJ222	2.2KΩ	5
	ERDS2TJ332	3.3KΩ	10
	ERDS2TJ103	10KΩ	6
	ERDS2TJ153	15KΩ	11
	ERDS2TJ223	22KΩ	5
	ERDS2TJ333	33KΩ	14
	ERDS2TJ473	47KΩ	7
	ERDS2TJ104	100KΩ	33
	ERDS2TJ154	150KΩ	10
	ERDS2TJ274	270KΩ	3
	ERDS2TJ474	470KΩ	3
	ERDS2TJ105	1MΩ	1
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	2
⚠	ERD2FCG220	🄵 22Ω, 1/4W, Fuse Type	5
CAPACITORS			
	ECEA1CU100	10μF, 16V	1
	ECEA1CU470	47μF, 16V	2
	ECEA1CU101	100μF, 16V	3
	ECEA1EU470	47μF, 25V	5
	ECEA1HUR47	0.47μF, 50V	3
	ECEA1HU010	1μF, 50V	3
	ECEA1HU2R2	2.2μF, 50V	3
	ECEA1HN010S	Ⓝ 1μF, 50V	2
	ECEA50ZR15	ⓩ 0.15μF, 50V	3
	ECEA50ZR33	ⓩ 0.33μF, 50V	1
	ECEA50ZR68	ⓩ 0.68μF, 50V	1
	ECQG1H102KZ	0.001μF	5
	ECQM1H473KV	0.047μF	5
	ECCR1H680J	○ 68PF	5
	ECCR1H101J	○ 100PF	4
	ECCR1H221J	○ 220PF	7
	ECCR1H471J	○ 470PF	3
	ECCR1H681J	○ 680PF	3

■ SELECTOR & MIXING CIRCUIT (SM)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1, 13	SVIGM5241L	Dual VCF (Voltage Controlled Filter)	2
IC2, 10, 11, 14, 15	SVIGM5218L	Operational Amplifier	5
IC3, 4, 7, 9	SVIGUPD4066B	Quadruple Bilateral Switch	4
○ IC5, 6	SVIGM5238L	Operational Amplifier	2
IC8	SVIG65002018	Gate Array	1
IC12	SVIGM5216LL	Operational Amplifier	1
IC16	AN6913	Dual Comparator	1
TRANSISTORS			
Q1, 2	2SJ40CD	FET	2
Q3	2SA933STRS		1
DIODES			
D1~5	MA165TA5		5
COMPONENT COMBINATIONS			
Z1, 2	SREG6A0511MM	Custom Block Resistor	2

Ref. No.	Part No.	Description	Per/Set
SEMI-FIXED RESISTORS			
○ VR1, 2	EVSG0T1B103A	10KΩ B	2
RESISTORS			
	ERDS2TJ101	100Ω	2
	ERDS2TJ151	150Ω	4
	ERDS2TJ471	470Ω	2
	ERDS2TJ681	680Ω	8
	ERDS2TJ102	1KΩ	9
	ERDS2TJ152	1.5KΩ	5
	ERDS2TJ222	2.2KΩ	16
	ERDS2TJ332	3.3KΩ	1
	ERDS2TJ472	4.7KΩ	7
	ERDS2TJ682	6.8KΩ	1
	ERDS2TJ103	10KΩ	7
	ERDS2TJ153	15KΩ	1
	ERDS2TJ223	22KΩ	6
	ERDS2TJ273	27KΩ	2
	ERDS2TJ473	47KΩ	6
	ERDS2TJ683	68KΩ	2
	ERDS2TJ104	100KΩ	6
	ERDS2TJ154	150KΩ	3
	ERDS2TJ224	220KΩ	1
	ERDS2TJ334	330KΩ	5
	ERDS2TJ474	470KΩ	5
	ERDS2TJ105	1MΩ	4
⚠	ERG1ANJP121	Ⓕ 120Ω, 1W	1
⚠	ERD2FCJ4R7	🄵 4.7Ω, 1/4W, Fuse Type	1
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	2
CAPACITORS			
	ECEA0JU471	470μF, 6.3V	2
	ECEA1CU100	10μF, 16V	7
	ECEA1CU101	100μF, 16V	3
	ECEA1HU010	1μF, 50V	5
	ECEA1HN010S	Ⓝ 1μF, 50V	4
	ECQG1H102KZ	0.001μF	1
	ECQG1H152KZ	0.0015μF	1
	ECQG1H332KZ	0.0033μF	3
	ECQM1H103KV	0.01μF	5
	ECQM1H223KV	0.022μF	5
	ECQM1H473KV	0.047μF	1
	ECCR1H100F	○ 10PF, ±1PF	5
	ECCR1H470J	○ 47PF	1
	ECCR1H101J	○ 100PF	2
	ECCR1H331J	○ 330PF	3
	ECCR1H471J	○ 470PF	1
	ECCR1H681J	○ 680PF	2
	ECKR1E473ZV	○ 0.047μF	5

■ MOTHER BOARD (MB)

Ref. No.	Part No.	Description	Per/Set
COILS			
○ L1	SLQGBA6516A		1
L2	SLQG16W33A	16μH	1
CAPACITOR			
	ECEA0JU102	1000μF, 6.3V	1

■ UPPER CONTROL PANEL RIGHT CIRCUIT (CPR)

	Ref. No.	Part No.	Description	Per/Set
	INTEGRATED CIRCUITS			
○	IC1	MN15524PGP	1 chip 4 bit Microcomputer	1
	IC2~4	SVIGM53217	Hex Buffer/Driver with Open Collector	3
○	IC5	MN1280R	Reset IC	1
	TRANSISTORS			
	Q1~4	2SA830B		4
	Q5, 6	2SC1047C		2
	DIODES			
S	D2~33	MA162A		32
	D34~48, 52~57, 61~64	SEL2210SLFM1	LED (red)	25
	D49~51, 58~60	SEL2710KLFM1	LED (yellow)	6
	CERAMIC OSCILLATOR			
○	X1	EFOFC4004A3	4MHz	1
	SWITCHES			
		SSHG1030A	Switch, for Push Type	32
	RESISTORS			
		ERDS2TJ470	47Ω	16
		ERDS2TJ152	1.5KΩ	20
		ERDS2TJ222	2.2KΩ	1
		ERDS2TJ472	4.7KΩ	3
		ERDS2TJ103	10KΩ	5
	CAPACITORS			
		ECEA0JU470	47μF, 6.3V	1
		ECCR1H471J	○ 470PF	1
		ECKR1E473ZV	○ 0.047μF	1
	TRANSISTORS			
	Q1, 2	2SC1047C		2
	DIODES			
	D2~18, 20~49, 92, 93	MA165TA5		49
	D50, 52, 53, 55~62, 65, 67~90	SEL2210SLFM1	LED (red)	36
	D51, 54, 64, 66, 91	SEL2710KLFM1	LED (yellow)	5
	CERAMIC OSCILLATOR			
○	X1	EFOFC4004A3	4MHz	1
	SWITCHES			
		SSHG1030A	Switch, for Push Type	42
○		SSSG1010A	Slide Switch, Transpose	1
	VARIABLE RESISTOR			
○	VR1	EVD06425B24G	20KΩ B, Tempo Control	1
	RESISTORS			
		ERDS2TJ470	47Ω	12
		ERDS2TJ152	1.5KΩ	26
		ERDS2TJ222	2.2KΩ	1
		ERDS2TJ472	4.7KΩ	3
		ERDS2TJ103	10KΩ	5
	CAPACITORS			
		ECEA0JU470	47μF, 6.3V	1
		ECCR1H471J	○ 470PF	1
		ECKR1E473ZV	○ 0.047μF	1

■ UPPER CONTROL PANEL LEFT CIRCUIT (CPL)

	Ref. No.	Part No.	Description	Per/Set
	DIODES			
S	D1~25	MA162A		25
	D26~39, 41~50	SEL2210SLFM1	LED (red)	24
	D40	SEL2710KLFM1	LED (yellow)	1
	SWITCHES			
		SSHG1030A	Switch, for Push Type	25

■ LOWER CONTROL PANEL LEFT CIRCUIT (CPSL)

	Ref. No.	Part No.	Description	Per/Set
	INTEGRATED CIRCUITS			
○	IC1	MN15524PGP	1 chip 4 bit Microcomputer	1
	IC2, 3	SVIGM53217	Hex Buffer/Driver with Open Collector	2
	IC4	SVIGTA61	Transistor Array	1
○	IC5	MN1280R	Reset IC	1

■ LOWER CONTROL PANEL RIGHT CIRCUIT (CPSR)

	Ref. No.	Part No.	Description	Per/Set
	INTEGRATED CIRCUITS			
○	IC1	MN15524PGP	1 chip 4 bit Microcomputer	1
	IC2	SVIGM53217	Hex Buffer/Driver with Open Collector	1
	IC3	SVIGTA61	Transistor Array	1
○	IC4	MN1280R	Reset IC	1
	TRANSISTORS			
	Q5, 6	2SC1047C		2
	DIODES			
	D2~24	MA165TA5		23
	D25~28, 30~32, 35~43, 46, 47	SEL2210SLFM1	LED (red)	18
	D29, 33, 34, 44, 45	SEL2710SLFM1	LED (yellow)	5
	CERAMIC OSCILLATOR			
○	X1	EFOFC4004A3	4MHz	1

Ref. No.	Part No.	Description	Per/Set
SWITCHES			
	SSHG1030A	Switch, for Push Type	23
RESISTORS			
	ERDS2TJ470	47Ω	6
	ERDS2TJ152	1.5KΩ	10
	ERDS2TJ222	2.2KΩ	1
	ERDS2TJ472	4.7KΩ	3
	ERDS2TJ103	10KΩ	5
CAPACITORS			
	ECEA0JU470	47µF, 6.3V	1
	ECCR1H471J	○ 470PF	1
	ECKR1E473ZV	○ 0.047µF	1

■ MUSICAL DISPLAY CIRCUIT (MD)

Ref. No.	Part No.	Description	Per/Set
TRANSISTORS			
Q1, 2	2SC2320LFG		2
DIODES			
D1	MA165TA5		1
RESISTORS			
	ERDS2TJ473	47KΩ	5
	ERDS2TJ105	1MΩ	2
CAPACITORS			
	ECEA1EK4R7	Ⓚ 4.7µF, 25V	1
	ECCR1H681J	○ 680PF	2
	ECKR1E473ZV	○ 0.047µF	1

■ MEMORY PACK CONTROL CIRCUIT (MPC)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	MN15621PGB	1 Chip 4 bit Microcomputer	1
TRANSISTORS			
Q1, 2, 7	2SC1047C		3
Q3, 5, 6, 9~11	2SC2320LFG		6
Q4	2SA1015GR		1
DIODES			
D1	MA165TA5		1
D2	MA1036H	Zener	1
COMPONENT COMBINATION			
Z1	EXATA223S	Noise Suppression Filter	1
CERAMIC OSCILLATOR			
X1	EFOA4R5M01A	4.5MHz	1

Ref. No.	Part No.	Description	Per/Set
RESISTORS			
	ERDS2TJ222	2.2KΩ	1
	ERDS2TJ472	4.7KΩ	2
	ERDS2TJ103	10KΩ	3
	ERDS2TJ223	22KΩ	1
	ERDS2TJ823	82KΩ	1
⚠	ERD2FCG101	🄵 100Ω, 1/4W, Fuse Type	1
CAPACITORS			
	ECEA1EU470	47µF, 25V	1
	ECEA50ZR1	Ⓩ 0.1µF, 50V	1
	ECCR1H330J	○ 33PF	1
	ECCR1H101J	○ 100PF	1
	ECCR1H471J	○ 470PF	1
	ECKR1E473ZV	○ 0.047µF	1

■ UPPER & LOWER KEYBOARD CIRCUIT (UKB & LKB)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUIT			
IC1	SVIGM74LS138	Decoder	1
DIODES			
D1~44	MA165TA5		44
COMPONENT COMBINATION			
Z1	EXATA223S	Noise Suppression Filter	1
SWITCHES			
	SSPG6001A	Rubber Switch (6 continuous)	5
	SSPG7001A	Rubber Switch (7 continuous)	2
CAPACITORS			
	ECEA0JU470	47µF, 6.3V	1
	ECKR1E473ZV	○ 0.047µF	1

■ PEDAL KEYBOARD CIRCUIT (PKB)

Ref. No.	Part No.	Description	Per/Set
DIODES			
S D1~13, 15	MA162A		14
SWITCH			
	SHGG50A	Rubber Switch (5 continuous)	3

■ JACK 1 CIRCUIT (JACK 1)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGM5218L	Operational Amplifier	1
IC2	SVIGM74LS09	Quadruple 2-Input Positive AND Gates	1

Ref. No.	Part No.	Description	Per/Set
DIODES			
D1~5	MA165TA5		5
COIL			
L2	SLQG13W6D1	13.5µH	1
JACKS			
○ JK1	SJJG450A	Headphones Jack	1
JK2	SJJG210A	Mic Jack	1
JK3	SJJG400A	AUX Jack	1
○ JK4	SJJG460A	Line Out Jack	1
JK5	SJJG250A	Ext. I/O (FD)	1
SWITCH			
RL1	SSYGMR30112	Relay	1
VARIABLE RESISTOR			
VR1	EWHD5A576A54	50KΩ A, Mic Volume	1
RESISTORS			
	ERDS2TJ681	680Ω	1
	ERDS2TJ102	1KΩ	3
	ERDS2TJ472	4.7KΩ	2
	ERDS2TJ103	10KΩ	2
	ERDS2TJ683	68KΩ	2
	ERDS2TJ154	150KΩ	1
	ERDS2TJ224	220KΩ	3
⚠	ERD25FVJ151	Ⓕ 150Ω, 1/4W	1
⚠	ERD50FJ681	Ⓕ 680Ω, 1/2W	2
⚠	ERD2FCG100	🄵 10Ω, 1/4W, Fuse Type	2
CAPACITORS			
	ECEA1EU470	47µF, 25V	2
	ECEA1HN010S	Ⓝ 1µF, 50V	2
	ECCR1H101J	○ 100PF	2
	ECKR1E473ZV	○ 0.047µF	3

■ JACK 2 CIRCUIT (JACK 2)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGM74LS05	Hex Inverter with Open Collector Output	1
IC2	SVIGTLP552	Photo Coupler	1
DIODES			
D1~7	MA165TA5		7
JACKS			
○ JK1, 2	SJSG1460A	MIDI In, MIDI Out	2
RESISTORS			
	ERDS2TJ221	220Ω	3
	ERDS2TJ331	330Ω	1
	ERDS2TJ472	4.7KΩ	1
CAPACITORS			
	ECKR1E473ZV	○ 0.047µF	3

■ NETWORK CIRCUIT (NW)

Ref. No.	Part No.	Description	Per/Set
COIL			
L2	SLCSC331KU	0.33mH	1
CAPACITOR			
	ECEA50Y3R3	Ⓨ 3.3µF, 50V	1

■ NOISE REDUCTION CIRCUIT (NR)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUIT			
IC1	SVIGLM1894N	Dynamic Noise Reduction	1
RESISTORS			
	ERDS2TJ331	330Ω	2
	ERDS2TJ681	680Ω	1
CAPACITORS			
	ECEA1CU100	10µF, 16V	1
	ECEA1CU470	47µF, 16V	1
	ECEA1EU101	100µF, 25V	1
	ECEA1HU010	1µF, 50V	1
	ECEA50ZR1	Ⓩ 0.1µF, 50V	1
	ECQG1H102KZ	0.001µF	2
	ECQG1H332KZ	0.0033µF	1
	ECQG1H472KZ	0.0047µF	1
	ECQM1H473KV	0.047µF	1

■ EXPRESSION CIRCUIT (EXP)

Ref. No.	Part No.	Description	Per/Set
Cds			
	SVEG5	Light Sensitive Device	1

■ FILTER CIRCUIT (LF), [EZ] only

Ref. No.	Part No.	Description	Per/Set
COILS			
L1	SLQG10W10D1	10µH	1
L2	SLQG10W2D1	10µH	1

■ FILTER 2 CIRCUIT (LF 2), [EZ] only

Ref. No.	Part No.	Description	Per/Set
COILS			
L1	SLQG10W8D1	10µH	1
L2	SLQG13W4D1	13.5µH	1

■ POWER AMPLIFIER CIRCUIT (PA)

Ref. No.	Part No.	Description	Per/Set
	INTEGRATED CIRCUITS		
IC1	AN7060	Power Amp Driver	1
	TRANSISTORS		
Q1	2SA1123R		1
Q2	2SC1815GR		1
Q3	2SD1277A		1
Q4	2SB951A		1
	DIODES		
D1~4 ⚠	SVDS2V20	Rectifier	4
D5	MA1062	Zener	1
	FUSES		
F6, 7 ⚠	XBA2C31TB0	T3.15A, 250V, Except for [MC][XT]	2
	RESISTORS		
	ERDS2TJ222	2.2KΩ	3
	ERDS2TJ472	4.7KΩ	1
	ERDS2TJ682	6.8KΩ	1
	ERDS2TJ103	10KΩ	2
	ERDS2TJ153	15KΩ	1
	ERDS2TJ223	22KΩ	1
	ERDS2TJ473	47KΩ	1
⚠	ERD25FVJ470	Ⓕ 47Ω, 1/4W	1
⚠	ERD50FJ6R8	Ⓕ 6.8Ω, 1/2W	1
⚠	ERX2ANJR22	Ⓕ 0.22Ω, 2W	2
	CAPACITORS		
	ECEA0JU470	47µF, 6.3V	1
	ECEA1HU100	10µF, 50V	1
	ECEA1HU222	2200µF, 50V	2
	ECEA1HN010S	Ⓝ 1µF, 50V	1
	ECQG1H222KZ	0.0022µF	1
	ECQM1H473KV	0.047µF	1
	ECQM1H104KV	0.1µF	1
	ECCR1H220J	○ 22PF	1
	ECCR1H470J	○ 47PF	1
	ECCR1H221J	○ 220PF	1
	ECCR1H681J	○ 680PF	1
	ECKR1E473ZV	○ 0.047µF	1
D4, 5 ⚠	SVDS2V20	Rectifier	2
D8	SVDGERC9102		1
	COILS		
L1	SLCG2A121T		1
L1 EZ	SLCG2A121TZ	[EZ] only	1
	FUSES		
F2, 3⚠ MC XT	XBA1F30NU14	3A, 125V, [MC][XT] only	2
F4, 5 ⚠	XBA2C31TB0	T3.15A, 250V	2
	RESISTORS		
	ERDS2TJ101	100Ω	3
MC XT	ERDS2TJ151	150Ω, [MC][XT] only	1
MC XT	ERDS2TJ221	220Ω, [MC][XT] only	1
	ERDS2TJ331	330Ω	2
	ERDS2TJ102	1KΩ	1
	ERDS2TJ472	4.7KΩ	3, (4)
	ERDS2TJ682	6.8KΩ	1
	ERDS2TJ103	10KΩ	6
	ERDS2TJ223	22KΩ	2
	ERDS2TJ333	33KΩ	1
	ERDS2TJ473	47KΩ	3
	ERDS2TJ104	100KΩ	2
⚠	ERG1ANJ221	Ⓕ 220Ω, 1W	1
⚠	ERX2ANJR22	Ⓕ 0.22Ω, 2W	1, (2)
	CAPACITORS		
	ECEA0JU102	1000µF, 6.3V	1
	ECEA1CU330	33µF, 16V	1
	ECEA1EU4R7	4.7µF, 25V	1
	ECEA1VU100	10µF, 35V	2, (3)
	ECEA1VU102	1000µF, 35V	1
	ECEA1VU222	2200µF, 35V	1
	ECEA1HU010	1µF, 50V	1
	ECEA1HU330	33µF, 50V	1
	ECQG1H152KZ	0.0015µF	1
	ECQG1H472KZ	0.0047µF	1
	ECQM1H103KV	0.01µF	1
	ECCR1H101J	○ 100PF	1
	ECCR1H681J	○ 680PF	1
	ECKR1E473ZV	○ 0.047µF	1

■ POWER SUPPLY CIRCUIT (PS)

Ref. No.	Part No.	Description	Per/Set
	INTEGRATED CIRCUITS		
IC1	AN7815F	Voltage Regulator	1
IC2	SVIGM51207L	Dual Comparator	1
○ IC3 MC XT	AN7918F	Voltage Regulator, [MC][XT] only	1
○ IC4	AN7915F	Voltage Regulator	1
	TRANSISTORS		
Q1, 2, 7	2SC2320LFG		3
Q3 MC XT	2SA933STRS	} [MC][XT] only	1
Q4 MC XT	2SB951A		1
Q5	2SA933STRS		1
Q6	2SB953A		1
	DIODES		
D1, 9	MA165TA5		2
D2, 3, 6, 7 ⚠	SVDGSM1A02LF	Rectifier	4

■ AC POWER SUPPLY CIRCUIT (ACP)

Ref. No.	Part No.	Description	Per/Set
	COILS		
L1 ⚠	SLTGLF3	Line Filter	1
L2 EZ	SLQG10W2D1	10µH, [EZ] only	1
	FUSES		
F1 ⚠	XBA1F30NU14	3A, 125V, MC XT only	1
F1 ⚠	XBA2C31TB0	T3.15A, 250V } EK XS XL XR X XX XV only	1
F2, 3 ⚠	XBA2C16TB0	T1.6A, 250V	2
F2 ⚠	XBA2C16TB0	T1.6A, 250V, other areas	1
	CAPACITORS		
⚠	ECQU2A104MN	0.1µF, 250V	1
⚠	ECKCVA1472MF	○ 4700µF, 250V	1

■ OTHERS

Ref. No.	Part No.	Description	Per/Set
SWITCHES			
⚠	ESB90712V	Power Switch	1
EK XL XR XS X XX XV ⚠	ESE3758	Voltage Selector, [EK][XL][XR][XS][X][XX] [XV] only	1
TRANSFORMERS			
○ ⚠	SLTG5M24	Power Transformer	1
○ MC XT ⚠	SLTG5M25	Power Transformer, [MC][XT] only	1
SPEAKERS			
○	EAS30PL132D	30cm, 6Ω	1
	EAS65PH71S	6.5cm, 6Ω	1
LED, LAMP			
	LN29RP	LED (Power Indicator), SX-EX50 only	1
	XAMR55P	Expression Lamp	1
AC CORD, PLUG			
⚠	SJAG24	AC Cord	1
EK XS ⚠	SJAG25	AC Cord, [EK][XS] only	1
MC XT ⚠	SJAG22	AC Cord, [MC][XT] only	1
XL XR ⚠	SJAG23	AC Cord, [XL][XR] only	1
⚠ X XX XV	SJP5213-1	Attachment Plug, [X][XX][XV] only	1

■ WIRING PARTS

Ref. No.	Part No.	Description	Per/Set
	SWKG0326LTA	Connector with Wire	1
○	SWKG0384ZA	Connector with Wire	1
	SWKG0489SSA	Connector with Wire	1
○	SWKG0497LSA	Connector with Wire	1
○ EK XL XR XS X XX XV	SWKG0498LTA	Connector with Wire, [EK][XL][XR][XS][X][XX] [XV] only	1
	SWKG0656STA	Connector with Wire	1
○	SWKG0690ZA	Connector with Wire	1
○	SWKG0882LSA	Connector with Wire	1
○	SWKG0883LSA	Connector with Wire	1
○	SWKG0884LSA	Connector with Wire	1
○	SWKG1051ZA	Connector with Wire, Except for [EZ]	1
○ EZ	SWKG1051ZB	Connector with Wire, [EZ] only	1
○	SWKG1055LSA	Connector with Wire, SX-EX50 only	1
○	SWKG1057LSA	Connector with Wire, SX-EX50L only	1
○	SWKG1330LSA	Connector with Wire	1
○	SWKG1331LSA	Connector with Wire	1
○ EZ	SWKG0235ZA	Connector with Wire [EZ] only	1
○ EZ	SWKG0480LSB	Connector with Wire	1
○ EZ	SWKG0863LSA	Connector with Wire	1
○ EZ	SWKG1030LSA	Connector with Wire	1

■ DIGITAL MEMORY PACK

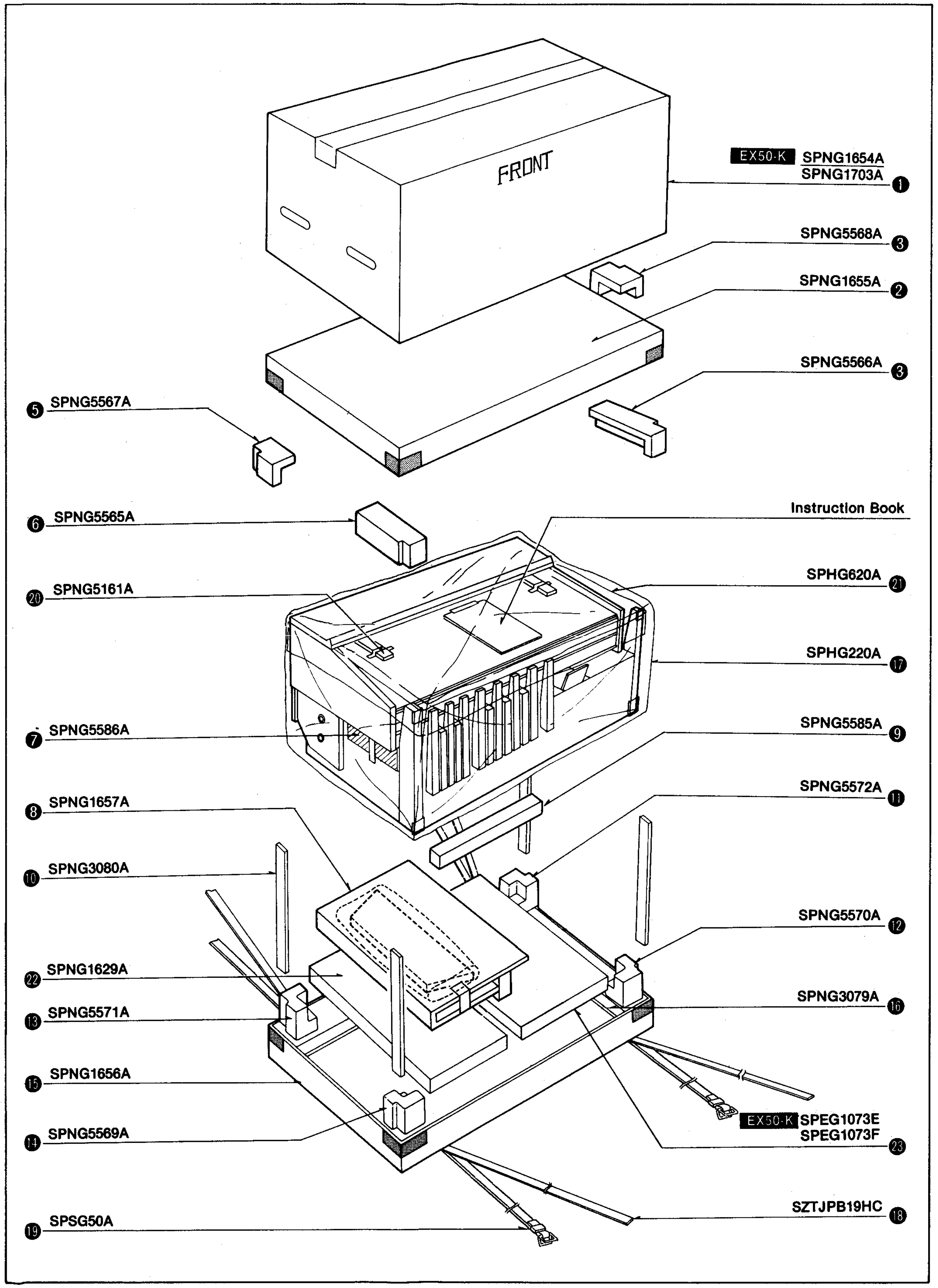
Ref. No.	Part No.	Description	Per/Set
SY-P2			
	SXPG12241	Memory Pack P.C.B.	1
IC1, 2	SVIGM512820R	16K bit CMOS Static RAM	2
D1	MA165TA5	Diode	1
Z1, 2	EXBEQ10104MM	Block Resistor, 100KΩ×10	2
SW1, 2	SSSG1001A	Switch	2
R1	ERDS2TJ103	Resistor, 10KΩ	1
R2～4	ERDS2TJ472	Resistor, 4.7KΩ	3
C1	ECSF35E1GE	Ⓣ Capacitor, 1μF, 35V	1
SY-P3			
	SXPG12242	Memory Pack P.C.B.	1
IC2	SVIG6264LP15	64K bit CMOS Static RAM	1
D1	MA165TA5	Diode	1
Z1	EXBEQ10104MM	Block Resistor, 100KΩ×10	1
Z2	EXBEQ12104MM	Block Resistor, 100KΩ×12	1
SW1, 2	SSSG1001A	Switch	2
R1	ERDS2TJ103	Resistor, 10KΩ	1
R2, 3	ERDS2TJ472	Resistor, 4.7KΩ	2
C1	ECSF35E1GE	Ⓣ Capacitor, 1μF, 35V	1

■ PACKING PARTS

Ref. No.	Part No.	Description	Per/Set
SX-EX50			
○ EX50·K	SPNGEX50EA	Packing Parts Ass'y	1
○	SPNGEX50EB	Packing Parts Ass'y	1
○ 1 EX50·K	SPNG1654A	Carton Box	(1)
○ 1	SPNG1703A	Carton Box	(1)
○ 2	SPNG1655A	Top Case	(1)
○ 3	SPNG5568A	Pad, Rear Right Side	(1)
○ 4	SPNG5566A	Pad, Front Right Side	(1)
○ 5	SPNG5567A	Pad, Rear Left Side	(1)
○ 6	SPNG5565A	Pad, Front Left Side	(1)
○ 7	SPNG5586A	Spacer, for Cabinet	(2)
○ 8	SPNG1657A	Packing Parts, Music Rack	(1)
○ 9	SPNG5585A	Spacer, for Bench	(1)
○ 10	SPNG3080A	Prop	(4)
○ 11	SPNG5572A	Pad, Rear Right Side	(1)
○ 12	SPNG5570A	Pad, Front Right Side	(1)
○ 13	SPNG5571A	Pad, Rear Left Side	(1)
○ 14	SPNG5569A	Pad, Front Left Side	(1)
○ 15	SPNG1656A	Bottom Case	(1)
○ 16	SPNG3079A	Frame	(1)
17	SPHG220A	Polyethylene Bag	(1)
18	SZTJPB19HC	Band	(2)
19	SPSG50A	Band, with Ring	(2)
20	SPNG5161A	Spacer, for Top Cover	2
21	SPHG620A	Protection Cover, for Cabinet	1
○ 22	SPNG1629A	Packing Parts, for Side Panel	1
○ 23 EX50·K	SPNG1073E	Packing Parts, for Bench	1
○ 23	SPNG1073F	Packing Parts, for Bench	1

Ref. No.	Part No.	Description	Per/Set
SX-EX50-L			
○	SPNGEX50LEA	Packing Parts Ass'y	1
○ 1	SPNG1658A	Carton Box	(1)
○ 2	SPNG1659A	Top Case	(1)
○ 3	SPNG5576A	Pad, Rear Right Side	(1)
○ 4	SPNG5574A	Pad, Front Right Side	(1)
○ 5	SPNG5575A	Pad, Rear Left Side	(1)
○ 6	SPNG5573A	Pad, Front Left Side	(1)
○ 7	SPNG5588A	Spacer, for Cabinet	(2)
○ 8	SPNG1661A	Packing Parts, Music Rack	(1)
○ 9	SPNG5587A	Spacer, for Bench	(1)
○ 10	SPNG3082A	Prop	(4)
○ 11	SPNG5580A	Pad, Rear Right Side	(1)
○ 12	SPNG5578A	Pad, Front Right Side	(1)
○ 13	SPNG5579A	Pad, Rear Left Side	(1)
○ 14	SPNG5577A	Pad, Front Left Side	(1)
○ 15	SPNG1660A	Bottom Case	(1)
○ 16	SPNG3081A	Frame	(1)
17	SPHG220A	Polyethylene Bag	(1)
18	SZTJPB19HC	Band	(2)
19	SPSG50A	Band, with Ring	(2)
20	SPHG620A	Protection Cover, for Cabinet	1
○ 21	SPNG1631A	Packing Parts, for Side Panel	1
○ 22	SPNG1073E	Packing Parts, for Bench	1
○ 23	SPNG1662A	Protection Cover, for Manual Keyboard	1

PACKING (SX-EX50)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SPNG1703A ①
FRONT
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SPNG1655A ②
SPNG5566A ③
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⑥ SPNG5565A
Instruction Book
⑳ SPNG5161A
SPHG620A ㉑
SPHG220A ⑰
⑦ SPNG5586A
SPNG5585A ⑨
SPNG5572A ⑪
⑧ SPNG1657A
⑩ SPNG3080A
SPNG5570A ⑫
㉒ SPNG1629A
SPNG3079A ⑯
⑬ SPNG5571A
⑮ SPNG1656A
EX50-K SPEG1073E
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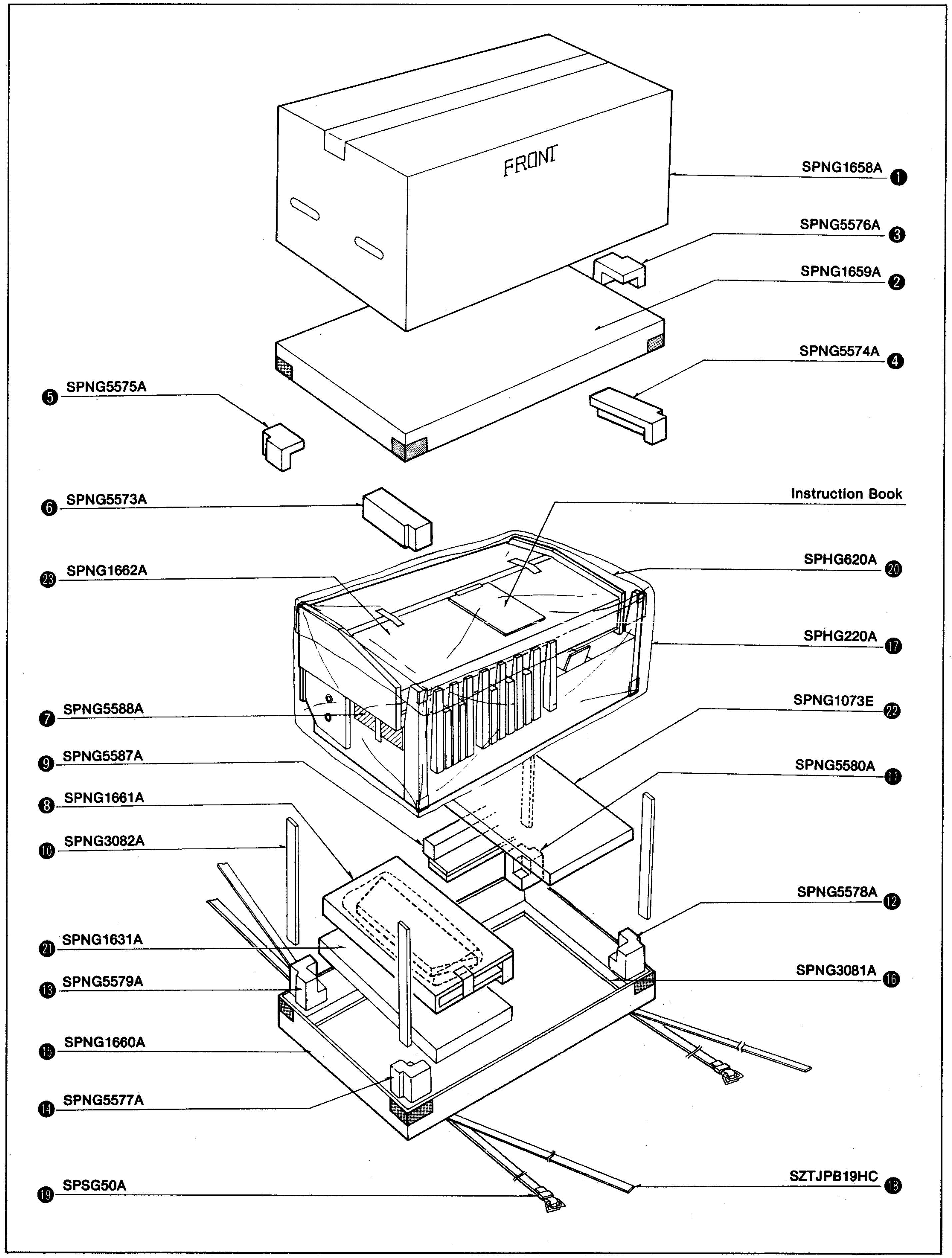
⑲ SPSG50A

PACKING (SX-EX50L)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SPNG5576A ③
SPNG1659A ②
SPNG5574A ④
⑤ SPNG5575A
⑥ SPNG5573A
Instruction Book
㉓ SPNG1662A
SPHG620A ⑳
SPHG220A ⑰
⑦ SPNG5588A
SPNG1073E ㉒
⑨ SPNG5587A
SPNG5580A ⑪
⑧ SPNG1661A
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